

ADDENDUM No. 1

RFP No. 23-10

Research Park Drive Resurfacing Project

Due: March 21, 2023 at 2:00 PM (local time)

The information contained herein shall take precedence over the original documents and all previous addenda (if any) and is appended thereto. **This Addendum includes eighty three (83) pages.**

The Proposer is to acknowledge receipt of this Addendum No. 1, including all attachments in its Proposal by so indicating in the proposal that the addendum has been received. Proposals submitted without acknowledgement of receipt of this addendum may be considered non-conforming.

The following forms provided within the RFP Document should be included in submitted proposal:

- **Attachment D - Prevailing Wage Declaration of Compliance**
- **Attachment E - Living Wage Declaration of Compliance**
- **Attachment G - Vendor Conflict of Interest Disclosure Form**
- **Attachment H - Non-Discrimination Declaration of Compliance**

Proposals that fail to provide these completed forms listed above upon proposal opening may be rejected as non-responsive and may not be considered for award.

I. CORRECTIONS/ADDITIONS/DELETIONS

Changes to the RFP documents which are outlined below are referenced to a page or Section in which they appear conspicuously. Offerors are to take note in its review of the documents and include these changes as they may affect work or details in other areas not specifically referenced here.

Section/Page(s)

Change

Pages 15-19
Section III.E

Schedule of Pricing/Cost Forms; replace with pages Addendum-1-4 to 8. Added pay item 4037050 - _Dr Structure Cover, Type Q, Modified.

Replaced pay item 4037050 - _Dr Structure Cover, Type C Modified with pay item 4037050 - _Dr Structure Cover, Type D, Modified.

Removed pay items 2057011 - _Grading, Sidewalk; 4037050 - _Dr Structure Cover, Type Q-1, Modified; 4037050 - _Dr Structure Cover, Type Q-2, Modified; and 5012012 - HMA, 3EL.

Pages 15-19 Section III.E (continued)	Revised estimated quantities for pay items 2057011 - _Machine Grading, Modified; 3020050 - Aggregate Base, Conditioning; 4037050 - _Dr Structure Cover, Type K, Modified; and 5012024 - HMA, 4EL.
Pages DS-25 to DS-28 Detailed Specifications	Detailed Specification for Machine Grading, Modified; replace with pages Addendum-1-9 to 14. Revised the Construction, and the Measurement and Payment requirements sections.
Pages DS-36 to DS-39 Detailed Specifications	Detailed Specification for Adjusting Structures Covers; replace with pages Addendum-1-15 to 18. Revised the Construction, and the Measurement and Payment requirements sections.
Page DS-40 Detailed Specifications	Detailed Specification for Drainage and Utility Structures; replace with page Addendum-1-19. Revised Construction, and Measurement and Payment sections.
Pages DS-41 to DS-46 Detailed Specifications	Detailed Specification for Structure Covers; replace with pages Addendum-1-20 to 25. Revised Materials, Construction, and Measurement and Payment sections.
Page DS-49 Detailed Specifications	Detailed Specification for Hot Mix Asphalt (HMA) Mixtures and Application Estimate; replace with page Addendum-1- 26. Revised Materials section.
Pages DS-50 to DS-52 Detailed Specifications	Detailed Specification for Hot Mix Asphalt (HMA) Paving; replace with pages Addendum-1-30 to 33. Revised Materials, Construction, and Measurement and Payment sections.
Pages DS-57 to DS-58 Detailed Specifications	Detailed Specification for Concrete Sidewalk, Curb Ramp and Driveway Approach; replace with pages Addendum-1- 31 to 32. Revised Construction, and Measurement and Payment sections.
Pages DS-63 to DS-67 Detailed Specifications	Detailed Specification for Maintenance of Traffic; replace with pages Addendum-1-33 to 37. Revised Description, Materials, and Construction sections.
Pages DS-72 to DS-76 Detailed Specifications	Detailed Specification for Turf Establishment, Performance; replace with pages Addendum-1-38 to 42. Revised Description, Materials, Construction, and Measurement and Payment sections.
Plans Sheets 1 to 41	Replace Plan Set in its entirety. Sheet revisions are noted below.
Sheet 1	Revised "Sheet List Table".

Sheet 9	Revised call outs on proposed typical section related to hot mix asphalt leveling and top courses. Revised HMA Application Table
Sheets 10-13	Revised call outs on proposed typical sections related to hot mix asphalt leveling and top courses.
Sheets 20-27	Revised call outs related to storm structure covers and adjustments.

II. QUESTIONS AND ANSWERS

The following Questions have been received by the City. Responses are being provided in accordance with the terms of the RFP. Respondents are directed to take note in its review of the documents of the following questions and City responses as they affect work or details in other areas not specifically referenced here.

Question 1: We have downloaded all the documents for the above project; however, we are missing Special Detail plan sheets 42-47. Please forward these or advise if they will be in an upcoming addendum or intentionally omitted.

Answer 1: Those sheets were shown in error on the cover sheet index and were not included as part of the plan set. The cover sheet index together with other plan revisions will be addressed as part of an addendum.

Proposers are responsible for any conclusions that they may draw from the information contained in the Addendum.

E. Schedule of Pricing/Cost – 20 Points

Company: _____

Unit Price Bid

<u>Item No.</u>	<u>Item Description</u>	<u>Unit</u>	<u>Estimated Quantity</u>	<u>Unit Price</u>	<u>Total Price</u>
1047051	_Certified Payroll Compliance and Reporting	LSUM	1.00	\$ _____	\$ _____
1047051	_Digital Audio-Visual Coverage	LSUM	1.00	\$ _____	\$ _____
1047051	_General Conditions, Max \$250,000.00	LSUM	1.00	\$ _____	\$ _____
1047051	_Project Supervision, Max \$25,000.00	LSUM	1.00	\$ _____	\$ _____
2047001	_Curb, Gutter, and Curb and Gutter, Any Type, Rem	Ea	5,378.00	\$ _____	\$ _____
2047001	_Exploratory Excavation, Vertical	Ft	100.00	\$ _____	\$ _____
2047011	_Sidewalk, Sidewalk Ramp, and Driveway Approach, Any Thickness, Rem	Syd	959.00	\$ _____	\$ _____
2057011	_Grading, Driveway Approach	Syd	775.00	\$ _____	\$ _____
2057011	_Machine Grading, Modified	Sta	36.64	\$ _____	\$ _____
2057021	_Undercutting, Type IIA	Cyd	200.00	\$ _____	\$ _____
2057021	_Undercutting, Type IIB	Cyd	100.00	\$ _____	\$ _____
2057021	_Undercutting, Type IIC	Cyd	100.00	\$ _____	\$ _____
2080036	Erosion Control, Silt Fence	Ft	4,000.00	\$ _____	\$ _____
2087050	Erosion Control, Inlet Filter	Ea	57.00	\$ _____	\$ _____
2090001	Project Cleanup	LSUM	1.00	\$ _____	\$ _____

TOTAL THIS PAGE \$ _____

<u>Item No.</u>	<u>Item Description</u>	<u>Unit</u>	<u>Estimated Quantity</u>	<u>Unit Price</u>	<u>Total Price</u>
3010002	Subbase, CIP	Cyd	3,967.00	\$ _____	\$ _____
3020050	Aggregate Base, Conditioning	Syd	17,220.00	\$ _____	\$ _____
3027011	_Aggregate Base, 8 inch, Modified	Syd	11,625.00	\$ _____	\$ _____
3027021	_Aggregate Base, CIP	Syd	250.00	\$ _____	\$ _____
3080010	Geotextile, Stabilization	Syd	100.00	\$ _____	\$ _____
3087011	_Structural Geogrid (Base)	Syd	250.00	\$ _____	\$ _____
4030280	Dr Structure, Adj, Add Depth	Ft	5.00	\$ _____	\$ _____
4030290	Dr Structure, Cleaning	Ea	25.00	\$ _____	\$ _____
4030306	Dr Structure, Tap, 6 inch	Ea	26.00	\$ _____	\$ _____
4037050	_Dr Structure, Adj, Case 1, Modified	Ea	94.00	\$ _____	\$ _____
4037050	_Dr Structure Cover, Type D, Modified	Ea	5.00	\$ _____	\$ _____
4037050	_Dr Structure Cover, Type K, Modified	Ea	16.00	\$ _____	\$ _____
4037050	_Dr Structure Cover, Type Q, Modified	Ea	45.00	\$ _____	\$ _____
4037050	_Dr Structure Cover, Type Q, Special	Ea	29.00	\$ _____	\$ _____
4037050	_Dr Structure, Point	Ea	25.00	\$ _____	\$ _____
4037050	_Dr Structure, Temp Lowering, Modified	Ea	74.00	\$ _____	\$ _____
4047001	_Underdrain, Subgrade, 6 inch, Special	Ft	4,087.00	\$ _____	\$ _____
5010005	HMA Surface, Rem	Syd	30,111.00	\$ _____	\$ _____
TOTAL THIS PAGE					\$ _____

<u>Item No.</u>	<u>Item Description</u>	<u>Unit</u>	<u>Estimated Quantity</u>	<u>Unit Price</u>	<u>Total Price</u>
5010025	Hand Patching	Ton	10.00	\$ _____	\$ _____
5012024	HMA, 4EL	Ton	9,020.00	\$ _____	\$ _____
6030005	Cement	Ton	5.00	\$ _____	\$ _____
8017011	_Driveway, Nonreinf Conc, 8 inch, Modified	Syd	775.00	\$ _____	\$ _____
8027001	_Curb and Gutter, Conc, Barrier	Ft	4,898.00	\$ _____	\$ _____
8027001	_Driveway Opening, Conc, Det M, Modified	Ft	1,131.00	\$ _____	\$ _____
8087001	_Fence, Protective, Modified	Ft	250.00	\$ _____	\$ _____
8110058	Pavt Mrkg, Ovly Cold Plastic, Bike, Small Sym	Ea	23.00	\$ _____	\$ _____
8110091	Pavt Mrkg, Polyurea, 4 inch, White	Ft	201.00	\$ _____	\$ _____
8110092	Pavt Mrkg, Polyurea, 4 inch, Yellow	Ft	11,376.00	\$ _____	\$ _____
8110094	Pavt Mrkg, Polyurea, 6 inch, White	Ft	23,088.00	\$ _____	\$ _____
8110212	Pavt Mrkg, Thermopl, 12 inch, Cross Hatching, White	Ft	117.00	\$ _____	\$ _____
8110213	Pavt Mrkg, Thermopl, 12 inch, Cross Hatching, Yellow	Ft	31.00	\$ _____	\$ _____
8110218	Pavt Mrkg, Thermopl, 24 inch, Stop Bar	Ft	89.00	\$ _____	\$ _____
8110450	Recessing Pavt Mrkg, Longit	Ft	34,665.00	\$ _____	\$ _____
8112165	Pavt Mrkg, Ovly Cold Plastic, Bike Thru Arrow Sym	Ea	23.00	\$ _____	\$ _____
8117050	_Pavt Mrkg, Thermopl, Lt Turn Arrow Sym	Ea	4.00	\$ _____	\$ _____
8120012	Barricade, Type III, High Intensity, Double Sided, Lighted, Furn	Ea	11.00	\$ _____	\$ _____
TOTAL THIS PAGE					\$ _____

<u>Item No.</u>	<u>Item Description</u>	<u>Unit</u>	<u>Estimated Quantity</u>	<u>Unit Price</u>	<u>Total Price</u>
8120013	Barricade, Type III, High Intensity, Double Sided, Lighted, Oper	Ea	11.00	\$ _____	\$ _____
8120140	Lighted Arrow, Type C, Furn	Ea	1.00	\$ _____	\$ _____
8120141	Lighted Arrow, Type C, Oper	Ea	1.00	\$ _____	\$ _____
8120235	Pavt Mrkg, Wet Reflective, Type NR, Paint, 4 inch, White, Temp	Ea	11,570.00	\$ _____	\$ _____
8120239	Pavt Mrkg, Wet Reflective, Type NR, Paint, 4 inch, Yellow, Temp	Ea	1,943.00	\$ _____	\$ _____
8120252	Plastic Drum, Fluorescent, Furn	Ea	240.00	\$ _____	\$ _____
8120253	Plastic Drum, Fluorescent, Oper	Ea	240.00	\$ _____	\$ _____
8120265	Pavt Mrkg, Wet Reflective, Type R, Tape, 24 inch, Stop Bar	Ea	45.00	\$ _____	\$ _____
8120310	Sign Cover	Ea	10.00	\$ _____	\$ _____
8120350	Sign, Type B, Temp, Prismatic, Furn	Sft	443.00	\$ _____	\$ _____
8120351	Sign, Type B, Temp, Prismatic, Oper	Sft	443.00	\$ _____	\$ _____
8120352	Sign, Type B, Temp, Prismatic, Special, Furn	Sft	6.00	\$ _____	\$ _____
8120353	Sign, Type B, Temp, Prismatic, Special, Oper	Sft	6.00	\$ _____	\$ _____
8120370	Traf Regulator Control	LSUM	1.00	\$ _____	\$ _____
8127050	_Pedestrian Type II Barricade, Temp	Ea	10.00	\$ _____	\$ _____
8127051	_Minor Traffic Control, Max \$75,000.00	LSUM	1.00	\$ _____	\$ _____
8167011	_Turf Establishment, Performance	Syd	2,800.00	\$ _____	\$ _____
8217050	_Monument Box, Adj	Ea	2.00	\$ _____	\$ _____
TOTAL THIS PAGE					\$ _____

<u>Item No.</u>	<u>Item Description</u>	<u>Unit</u>	<u>Estimated Quantity</u>	<u>Unit Price</u>	<u>Total Price</u>
8237050	_Gate Box, Adj, Case 1, Modified	Ea	12.00	\$ _____	\$ _____
TOTAL THIS PAGE					\$ _____
TOTAL FROM PAGE 15					\$ _____
TOTAL FROM PAGE 16					\$ _____
TOTAL FROM PAGE 17					\$ _____
TOTAL FROM PAGE 18					\$ _____
TOTAL BASE BID					\$ _____

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
MACHINE GRADING, MODIFIED

SDA:JAB/DAD

1 of 6

03/13/23

a. Description. This work consists of constructing earth grades by excavating, cutting, filling, trimming, and grading, and maintaining the work in a finished condition until such time of acceptance by the Engineer. Complete machine grading in accordance with section 205 of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction, the Plans, and as specified herein with the exception that subgrade undercutting, which if included in the Contract the Engineer will pay for separately. Machine grading includes all the work described herein, and as directed by the Engineer.

b. Materials. Use materials meeting the requirements specified in subsection 205.02 of the MDOT Standard Specifications for Construction.

c. Construction. Use construction methods meeting the requirements specified in subsection 205.03 of the MDOT Standard Specifications for Construction, except as specified herein.

1. Soils Information - Soil information provided as part of the contract documents is for informational purposes only and does not relieve the Contractor of the responsibility of investigating all local conditions before bidding.
2. General Provisions:
 - A. Grade around mailboxes, trees, light poles, power poles, and the like, which are to remain in place. The Contractor is responsible for any damage caused to such structures.
 - B. Maintain the work in a finished condition until acceptance by the Engineer.
3. Clearing, and Removal of Trees and Vegetation - Remove and properly dispose of off-site all vegetation; brush; roots; and trees and stumps, as shown on the Plans, as directed by the Engineer, and as required to complete the project.
4. Removal and Salvaging of Topsoil – Perform the removal, salvaging and stockpiling of topsoil, and all related work in accordance with subsection 205.03.A.1 of the MDOT Standard Specifications for Construction.
5. Miscellaneous Removals – Remove any surface feature located within the grading limits requiring removal and for which there is no specific pay item established in the Contract. This includes removing surface materials (i.e., aggregate base, subbase, subgrade) and miscellaneous asphalt, concrete or brick materials from around manholes, structures, and utility covers.
6. Protection of the Grade – Keep work well drained at all times. Undercut and backfill any foundation, pathway or roadway embankment or subgrade damaged by rain, as directed by the Engineer.

The Contractor is responsible for maintaining the foundation, pathway or roadway embankment, and subgrade.

Conduct operations and provide the necessary equipment to ensure the satisfactory completion of the work without damaging the foundation, pathway or roadway embankment or subgrade. This may require the transporting and movement of materials over additional distances.

7. Protection of Utilities and Vaults/Structures - Protect and excavate around utility lines, vaults, and structures exposed at, above, or below, the foundation or subgrade elevation during machine grading or subgrade undercutting operations.

8. Removal of Cable, Conduits and Pipe - Remove, and properly dispose of off-site, all abandoned cables, conduit, and pipe encountered at, or above the bottom of any earthwork excavation or undercut. Where the inverts of existing conduits or pipe are less than 16 inches below the bottom of any earth excavation or undercutting, remove the conduits and/or pipe and fill void with an Engineer approved material. Compact fill material to 95% of its maximum unit weight in lifts not exceeding 12 inches.

9. Foundation Preparation – The pathway or roadway “foundation” definition is the original or established earth subgrade of the pathway or roadway upon which the Contractor will place embankment material. Complete foundation work in accordance with subsection 205.03.A of the MDOT 2020 Standard Specifications for Construction, as shown on the Plans, and as specified herein.

Compact foundation to 95% of its maximum unit weight, as measured by the AASHTO T-180 method, to a depth of at least 10 inches. If in the opinion of the Engineer the Contractor cannot achieve this, it will direct the Contractor to perform “Subgrade Undercutting” as described herein, on the foundation.

10. Pathway or Roadway Embankment Construction – The pathway or roadway “embankment” definition is the construction of earth on the prepared foundation to form the subgrade. Complete pathway or roadway embankment in accordance with subsection 205.03.H of the MDOT Standard Specifications for Construction, as shown on the Plans, and as specified herein. Compact pathway or roadway embankment to a minimum of 95% of its maximum unit weight, as measured by the AASHTO T-180 method.

11. Subgrade Construction - The pathway or roadway “subgrade” definition is the final earth grade that extends from grading limit to grading limit. Construct the subgrade by performing earth excavation and embankment work in accordance with subsections 205.03.G and 205.03.H, respectively, of the MDOT 2020 Standard Specifications for Construction, as shown on the Plans, and as specified herein.

Construct the subgrade to the contours and cross-sections shown on the plans, as specified herein, and as directed by the Engineer. To achieve this, the work will include, but not be limited to:

- A. Removal and disposal off-site of any surplus or unsuitable materials.
- B. Furnishing from off-site any additional Engineer approved fill materials necessary.
- C. Moving existing and/or furnished materials longitudinally and transversely as necessary.

D. Cutting, placing, compacting, and trimming existing and/or furnished materials to construct the pathway or roadway embankment and subgrade to the specified tolerances.

E. Stockpiling, and moving again, any excavated materials requiring delayed placement due to construction staging.

Grade the earth subgrade to accommodate all pathway or roadway subbases and aggregate bases; all infiltration trench, bioswale and adjacent planting bed materials; curb and gutter, driveways, sidewalks, and other structures; infiltration trench and bioswale planting mixes, and topsoil; and any other features that the subgrade supports.

Prepare the subgrade to ensure uniform support for the pavement structure. Place the finished subgrade to within 1 inch below and 3/4 inch above plan grade. Variations within this tolerance will be gradual.

Compact subgrade to a minimum of 95% of its maximum unit weight, as measured by the AASHTO T-180 method, to a depth of 10 inches. If in the opinion of the Engineer the Contractor cannot achieve this, it will direct the Contractor to perform "Subgrade Undercutting" as described herein.

13. Test/Proof Rolling – Test/proof-roll the foundation and/or subgrade with a pneumatic tired roller with a suitable body for ballast loading and a variable gross load capacity between 25 and 40 tons. Instead of this test roller, with the approval of the Engineer, the Contractor may use a fully loaded single axle or tandem axle dump truck.

14. Subgrade Undercutting - Perform subgrade undercutting on the foundation or subgrade in accordance with subsection 205.03.E of the MDOT 2020 Standard Specifications for Construction, as shown on the plans, as specified herein, and as directed by the Engineer.

15. Rock Excavation – Remove rocks and boulders, concrete, and masonry. Perform rock excavation in accordance with subsection 205.03.B of the MDOT 2020 Standard Specifications for Construction, as shown on the Plans, and as directed by the Engineer.

16. Lowering Structures and Structure Covers – Temporarily lower all structures prior to Machine Grading. At the direction of the Engineer stockpile separately on site at a location mutually agreed upon by the Contractor and Engineer any/all existing structure covers respectively designated for salvage or reinstallation. Deliver salvaged structure covers to the City's W.R. Wheeler Service Center (4251 Stone School Rd, Ann Arbor, MI) within two days of their removal. Any structure covers not designated for salvage or reinstallation are the property of the Contractor, and must be disposed of, as required, by the Contractor.

17. Structure and Sewer Cleanliness – Protect all sewers, and structures, including manholes, gate wells, valve boxes, inlet structures and curbs from damage, and contamination by debris and construction materials. Maintain structures clean of construction debris and properly cover them during the construction. The Contractor will immediately clean any structures and/or sewers contaminated with construction debris.

18. Tree Trimming/Pruning – Conduct tree trimming/pruning as directed by the Engineer and obtain a permit and coordinate this work with the City's Urban Forester.

The Plans include existing and proposed cross sections. The Contractor must perform its own computations and is responsible to inspect the site to determine its own estimate of the quantities involving this work.

Construct earth grades as required to develop the typical and/or detailed cross-section(s) as shown on the Plans, as detailed in the Specifications, and as directed by the Engineer. This includes, but not be limited to, the excavation of miscellaneous concrete and miscellaneous HMA pavement, soil, rocks of any size, trees less than 6-inches in breast height diameter, stumps, logs, and bricks; the removal and proper disposal off-site of surplus excavated material; the scarifying, plowing, disking, moving and shaping of earth; the trimming, grading, compaction and proof-rolling of the prepared subgrade; the importing, furnishing, placement and compaction of embankment and/or fill materials; the full depth saw-cutting of pavement at the removal limits; the grading of side slopes; general restoration in accordance with the Detailed Specifications and the general items of the work as specified herein.

Remove, add to, re-shape, re-grade, and re-compact the existing roadbed materials, and construct the roadway to the cross-section(s) as indicated on the Plans, as detailed in the Specifications, and as directed by the Engineer. Use blade graders, maintainers, vibratory rollers, and/or other equipment as necessary, and as detailed in the Specifications and as directed by the Engineer, for this work. Use of each specific piece of equipment is subject to the approval of the Engineer.

At the direction of the Engineer, either remove and dispose of, or remove and salvage by delivering to and neatly stacking/stockpiling at a location within the city limits, all bricks, if present within the grading limits.

Salvage and provide to the City any/all signs in the grading limits as directed by the Engineer.

Move excavated and/or imported materials longitudinally and/or transversely where necessary, and as directed by Engineer.

Keep the work well graded and drained at all times.

Do not use rubber-tired equipment on the subgrade when it causes or may cause, in the opinion of the Engineer, damage to the subgrade. Conduct operations and provide all necessary equipment to ensure the satisfactory completion of the work without damaging the subgrade. This includes the transporting, stockpiling, re-handling, and movement of materials over additional distances, in-lieu-of driving on an unprotected, or partially unprotected, subgrade.

The Contractor is solely responsible for the maintenance and protection of the subgrade, and for repairing any/all damages to it resulting from, in the opinion of the Engineer, the its operation(s), or the operation(s) of its subcontractors or suppliers. This includes any additional earthwork and/or maintenance materials as directed by the Engineer.

Perform all rough and/or finish grading and compaction to the grades shown on the Plans, as detailed in the Specifications, and as directed by the Engineer.

Test/proof-roll all graded and compacted surfaces in the presence of the Engineer as detailed in the Specifications. The Engineer will monitor the test/proof-rolling operation to locate deleterious and/or uncompacted materials and will direct undercuts, as necessary.

At various times throughout the work, the Engineer may direct the Contractor to use smaller and/or lighter equipment, and to defer certain work tasks, to protect the grade and/or adjacent areas.

Coordinate with the City’s Urban Forester prior to the removal of any tree roots 2 inches or larger in diameter.

d. Measurement and Payment. Measure and pay for the completed work, as described, at the contract unit price using the following pay item:

Pay Item	Pay Unit
Machine Grading, Modified.....	Station

Measure **Machine Grading, Modified** length by the station and pay for it at the contract unit price, which price includes costs for all labor, equipment and materials necessary to complete the work. The Engineer will measure **Machine Grading, Modified** along the centerline. The Engineer will measure each side of the road where work is performed, separately.

The described work for **Machine Grading, Modified** includes all the work specified herein, including, but not limited to, the removal and offsite disposal of any surplus or unsuitable materials and the furnishing from off-site any additional Engineer approved fill materials necessary to construct the embankment and subgrade to the contours and cross-sections shown on the Plans.

Due to the nature of the project, there is a likely probability that some or all of the excavated material may not be suitable for use as fill material. Consequently, there may be imbalances between the amount of earth excavation available for re-use as embankment, and the amount of embankment needed for the construction activities shown on the Plans or as directed by the Engineer. The unit price bid for this work includes the costs to address this probable imbalance and to furnish, stockpile and re-handle, place, and compact any Engineer approved material necessary to complete the work of constructing the embankment and subgrade to the cross sections shown on the Plans.

Deviations between the existing contours and the existing and proposed cross-sections shown on the plans are not cause for additional compensation.

The Engineer will not pay separately for the removal of conduit or pipe, or any of the work described in this Specification.

The Engineer will not pay additional compensation or allow extensions of contract time for additional measures required to protect the grade as specified this includes the use of smaller equipment, lighter equipment, or work task deferral.

Rock excavation performed as a part of **Machine Grading, Modified** will apply only to removal of rocks and boulders, concrete, and masonry less than a 1/2 cubic yard in volume. Payment for removal of these measuring greater than 1/2 cubic yard using the pay item **Rock Excavation**. The Engineer will pay the Contractor for rock excavation measuring greater than 1/2 cubic yard as extra work if the **Rock Excavation** pay item is not in the contract. Measure boulders individually and compute the volume from the average dimension measured in three directions.

The Engineer will pay the Contractor for the temporary lowering of structures as **Dr Structure, Temp Lowering, Modified**.

The Contractor, at its sole expense, will remedy, as directed by the Engineer, any damage to the foundation, pathway, or roadway embankment or subgrade caused by traffic or its operations.

The Contractor is responsible for all direct and indirect damages caused by unclean or damaged sewers or structures resulting from its work or operations.

The Engineer will not pay additional compensation or allow extensions of contract time for tree trimming measures and coordination of this work with the City.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
ADJUSTING STRUCTURE COVERS

SDA:JAB/DAD

1 of 4

03/13/23

a. Description. This work includes the final adjustment of all drainage and utility structure covers whether shown or not on the plans in accordance with sections 403 and 823 of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction, applicable standard/special details, and as specified herein. Utility structures comprise gate wells/manholes and boxes, sanitary sewer manholes, storm manholes, catch basins/inlets, monument boxes, and private utility manholes/boxes.

The Contractor must also coordinate with private utility(s) to have them perform any required adjustment(s) of structure covers and to ensure performance of proper adjustments prior to placing any final paving materials.

b. Materials. Provide materials in accordance with those specified in subsection 403.02 of the MDOT Standard Specifications for Construction.

Furnish Concrete, Grade 3500 or Concrete, Grade P-NC as directed by the Engineer in accordance with Sections 1004 and 1006 of the MDOT 2020 Standard Specifications for Construction, respectively.

Furnish hot-poured joint sealant in accordance with Section 914 of the Standard Specifications for Construction.

For gate well/manhole, sanitary sewer manhole, storm manhole and catch basin/inlet use precast concrete adjusting rings or an Engineer approved equivalent.

For concrete curb and concrete curb and gutter, furnish materials in accordance with subsection 802.02 of the MDOT 2020 Standard Specifications for Construction.

c. Construction. Complete this work, as applicable, according to subsection 403.03 of the MDOT Standard Specifications for Construction, as described below, and as directed by the Engineer.

In hot mix asphalt (HMA) pavement areas, make adjustments using Concrete, Grade 3500 or Concrete, Grade P-NC. In areas of concrete (PCC) pavement, adjust structures at the time of paving and encase them with the grade of concrete used for the roadway.

Adjust any/all structure covers, monument boxes, water valve boxes and other public utility underground access or control point covers to conform to the finished surface section and elevation. Perform the structure cover adjustments in lawn areas and those using a one-step process. Perform structure cover adjustments in HMA pavement areas in two steps: step one is the lowering of the structure cover to below the subgrade elevation and plating of the structure; step two is the final adjustment to finish grade made prior to placing the HMA top course. In areas of concrete pavement, make the final adjustment of structure covers to finish grade at the time of concrete pavement forming. The Engineer shall approve of all structure cover adjustments prior to the placement of any HMA and/or concrete pavement.

For structures within the pavement area, remove pavement adjacent to the drainage structure cover using a rotary or sawing method. When using a rotary coring method, remove a minimum 4-foot diameter section of pavement around the drainage structure frame and cover. If the frame outside diameter measurement is greater than 36 inches, use a rotary coring head to remove a minimum 4.5-foot diameter section of pavement. When using a sawing method, sawcut clean and remove a 6-foot by 6-foot pavement square.

For structures within the curb line, saw cut and remove a 4-foot by 6-foot section of pavement around the frame with the 6-foot dimension measured along the curb line. Remove curb and/or curb and gutter associated with the adjustment of structures, as directed by the Engineer.

For structures located adjacent to concrete traffic control islands, remove concrete island full-width or up to 6-feet wide to facilitate adjustment of the drainage structure cover frame, as directed by the Engineer.

Prior to setting the frame, compact exposed soil using a method approved by the Engineer.

Support the cover frame over the structure matching the adjacent roadway cross slope. Secure the frame in-place to allow for placement of concrete using brick or block as required on a full bed of mortar without altering frame position. Replace pavement around the frame with Concrete, Grade 3500 or Concrete, Grade P-NC, as directed by the Engineer, matching the finished elevation and cross-slope of the roadway. Construct plane of weakness joint as directed by the Engineer.

For structures within the curb line, replace pavement around the frame with Concrete, Grade 3500 or Concrete, Grade P-NC as directed by the Engineer and HMA top course as shown on the detail herein. Replace concrete curb and concrete curb and gutter, in-kind in accordance with the MDOT Standard Plan R-30 Series and section 802 of the MDOT 2020 Standard Specifications for Construction.

Immediately remove any debris that falls into drainage structures or other utility manholes due to Contractor operations.

Ensure saw overcuts are cleaned and sealed with hot-poured joint sealant.

Any/all final structures cover adjustments are to be to the elevation that results in their top surface being flush with the finished grade. Accomplish and check this work using a 10-foot straight edge placed parallel, and then perpendicular to, the pavement centerline. Failure to meet these conditions will result in the readjustment of the structure and finish patching of the area, as directed by the Engineer, at the Contractor's expense.

All private utility (Electric, Gas, Telecommunications, etc.) structure and valve covers will be adjusted during this project by the utility owner unless otherwise approved. It is the responsibility of the Contractor to coordinate with these private utilities by giving adequate notice and arranging for any adjustment of structures or valves by these utilities. The Contractor is solely responsible for ensuring completion of this work in a timely manner.

The Contractor shall replace existing structures covers, top portions of valve boxes and monument boxes as shown on the plans and as directed by the Engineer.

Any/all adjustments in areas HMA pavement include backfilling with Grade P-NC concrete from the depth of excavation necessary for adjustment to an elevation flush with the HMA leveling course.

Adjust structure covers to be flush with or 1/4 inch below final pavement surface.

d. Measurement and Payment. Measure and pay for the completed work, as described, at the respective contract unit prices using the following respective pay items:

Pay Item	Pay Unit
Dr Structure Cover, Adj, Case __, Modified	Each
Monument Box, Adj	Each
Gate Box, Adj, Case __, Modified	Each

Measure **Dr Structure Cover, Adj, Case __, Modified, Monument Box, Adj** and **Gate Box, Adj, Case __, Modified** respectively and individually in place by the unit each and pay for them at their respective contract unit prices, which prices include costs for all labor, equipment, and materials necessary to complete the work.

Backfilling with Grade P-NC concrete is not a separate contract item, and payment for **Dr Structure Cover, Adj, Case 1, Modified, Monument Box, Adj** and **Gate Box, Adj, Case 1, Modified** includes furnishing and placing this material.

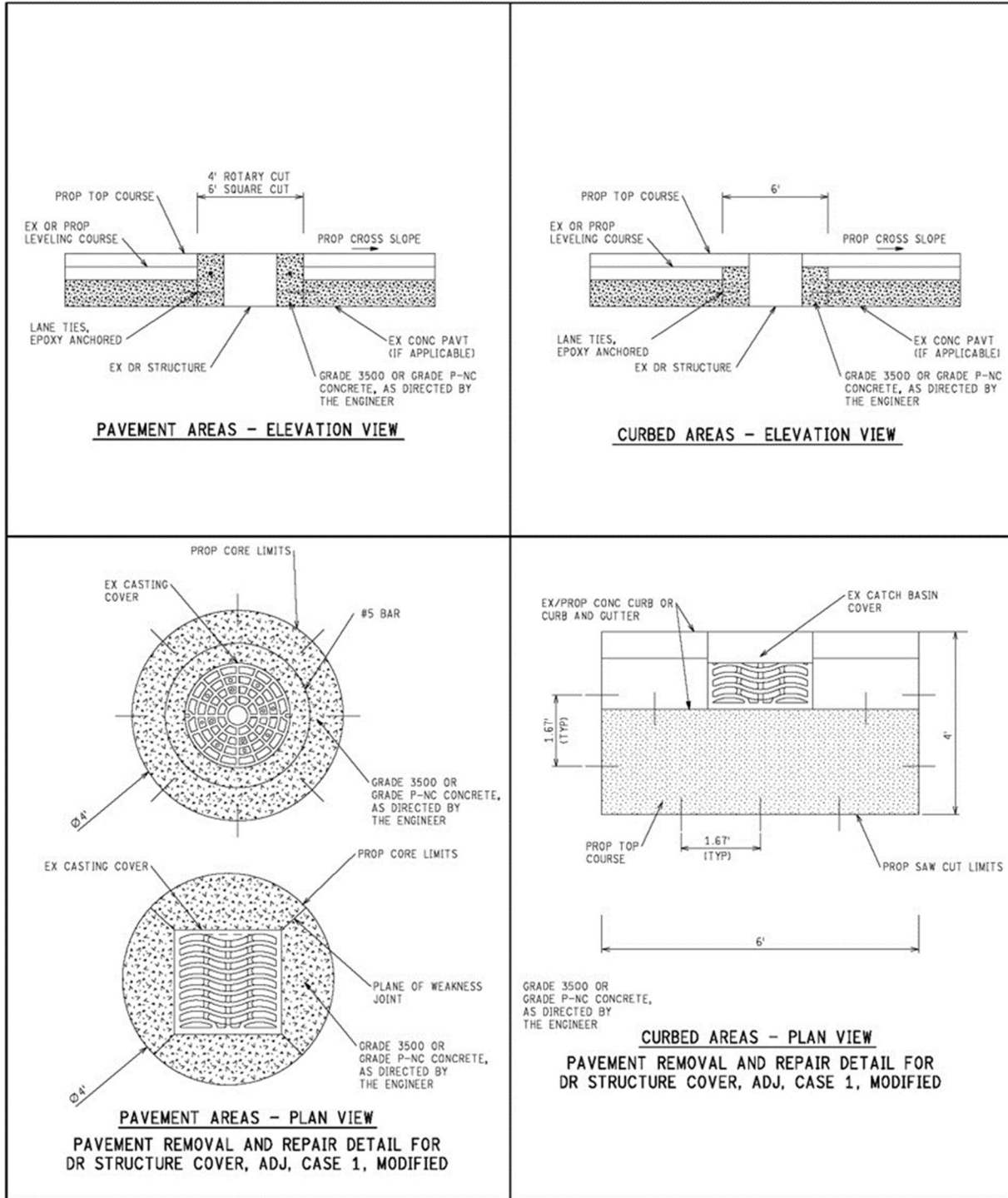
Payment for these items of work also includes saw cutting, removal and disposal of existing pavement and curb or curb and gutter, adjustment of cover to required elevation and cross-slope, placement and finishing of new curb or curb and gutter, placement and finishing of new HMA, placement and removal of temporary HMA wedging for maintaining traffic, if required, sealing saw overcuts, and placement of cover on open structures to prevent accumulation of debris and cleaning existing drainage structures due to Contractor operations.

Where the required adjustment of a structure is more than 6 inches above/below the proposed finished grade of the structure, measure and pay for it as **Dr Structure Cover, Adj, Add Depth**. This also includes the repair of manholes and structures requiring less than the substantial rebuilding of the structure, as determined by the Engineer.

There is a possibility that the Contractor may find hidden utility structures during the work. It is the Contractor's responsibility to inform the respective utility owner(s) of the findings. In such instances, the City may direct the Contractor to adjust the structure(s) to grade. The Engineer will pay this work as either **Dr Structure Cover, Adj, Case __, Modified, Monument Box, Adj** or **Gate Box, Adj, Case __, Modified** depending on the type and location of the hidden structure(s).

The Engineer will pay for adjusting covers on new drainage or utility structures, monuments boxes, gate boxes, etc. in their respective items of work and not pay for them under these items of work. Perform this work in accordance with this detailed specification.

The Engineer will pay for the adjustment of electrical/traffic signal handholes as **Dr Structure Cover, Adj, Case __, Modified** unless there are separate pay items in the contract to address this work.



CITY OF ANN ARBOR
 DETAILED SPECIFICATION
 FOR
DRAINAGE AND UTILITY STRUCTURES

SDA:DAD

1 of 1

03/13/23

a. Description. This work consists of pointing and/or temporary lowering drainage and utility (storm, sanitary, water, private) structures whether shown or not on the plans in accordance with section 403 of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction, as directed by the Engineer, and as herein provided.

b. Materials. Provide materials in accordance with subsection 403.02 of the MDOT Standard Specifications for Construction, unless otherwise directed by the Engineer.

c. Construction. Point and/or temporary lower drainage and utility structures in accordance with subsection 403.03 of the MDOT Standard Specifications for Construction, and as directed by the Engineer.

Temporarily lower drainage and utility structures per the details shown on the plans. Temporarily lower all structures prior to performing any Machine Grading work. At the direction of the Engineer stockpile separately on site at a location mutually agreed upon by the Contractor and Engineer any/all existing structure covers respectively designated for salvage or reinstallation. Deliver salvaged structure covers to the City’s W.R. Wheeler Service Center (4251 Stone School Rd, Ann Arbor, MI) within two days of their removal. Any structure covers not designated for salvage or reinstallation are the property of the Contractor, and must be disposed of, as required, by the Contractor.

Point structures by removing loose and damaged mortar, filling joints between concrete and masonry units with new mortar, and striking joints so the exposed surface is smooth and free of voids.

Protect and clean any/all structures as a result of this work.

d. Measurement and Payment. Measure and pay for the completed work, as described, at the respective contract unit prices using the following respective pay items:

Pay Item	Pay Unit
Dr Structure, Point.....	Each
Dr Structure, Temp Lowering, Modified	Each

Measure **Dr Structure, Point** and **Dr Structure, Temp Lowering, Modified** respectively and individually in place by their respective units each and pay for them at their respective contract unit prices, which prices include the costs for all labor, equipment and materials necessary to complete the work.

Include any/all costs to stockpile and deliver salvaged structure covers to the City’s W.R. Wheeler Service Center in the contract unit price bid for **Dr Structure, Temp Lowering, Modified**.

CITY OF ANN ARBOR
 DETAILED SPECIFICATION
 FOR
STRUCTURE COVERS

SDA:JAB/DAD

1 of 6

03/13/23

a. Description. This work shall consist of replacing and furnishing frames and covers for utility (storm, sanitary, and water) structures as shown on the plans and as directed by the Engineer, in accordance with section 403 of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction, except as specified herein.

b. Materials. Provide materials meeting the requirements of subsection 403.02 and section 908 of the Standard Specifications for Construction. Provide frames and covers conforming to the model(s) shown in the table below, or equivalent approved by the Engineer.

Type of Casting	Associated Pay Item (MDOT Designation)	EJ No.	NEENAH No.
Manhole Frame and Cover (storm)	Dr Structure Cover, Type Q, Modified	1040Z Frame w/1040A Logo Cover	R-1642 Frame w/Type C Cover
Manhole/Gate Well Frame and Cover (water)	Dr Structure Cover, Type Q, Modified	1040Z Frame w/1040A Logo Cover	R-1642 Frame w/Type C Cover
Manhole Frame and Cover (sanitary)	Dr Structure Cover, Type Q, Special	1040Z Frame w/1040AGS Logo Cover	
Curb Inlet/Catch Basin Frame and Cover (barrier curb & gutter)	Dr Structure Cover, Type K, Modified (MDOT Cover K)	7045Z Frame w/7050T2 Back & 7045M1 Grate	R-3031-B
Double Curb Inlet/Catch Basin Frame and Cover (barrier curb & gutter)	Dr Structure Cover, Type K, Modified (MDOT Cover K)	7045Z Frame w/7050T2 Back & 7045M1 Grate	R-3031-B
Curb Inlet/Catch Basin Frame and Cover (mountable curb & gutter)	Dr Structure Cover, Type C, Modified (MDOT Cover C)	7045Z Frame w/7060T1 Back & 7045M1 Grate	
Flat Inlet Frame and Cover (straight curb and curb & gutter)	Dr Structure Cover, Type D, Modified (MDOT Cover D)	5100Z Frame w/5105M1 Grate	
Inlet/Catch Basin Grate (yard drain)	Dr Structure Cover, Type E, Modified (MDOT Cover E)	6508-O Grate	

Type of Casting	Associated Pay Item (MDOT Designation)	EJ No.	NEENAH No.
Inlet/Catch Basin Grate (yard drain)	Dr Structure Cover, Type G, Modified (MDOT Cover G)	6517N1 Grate	R-2560-E1
Manhole Frame and Cover (storm/flood prone areas)	Dr Structure Cover, Special	1040ZPT Frame w/1040APT Cover	
Inlet/Catch Basin Frame and Cover (gutter)	Dr Structure Cover, Type R, Modified (MDOT Cover R)	7076Z Frame w/7075M1 Grate	
Double Inlet/Catch Basin Frame and Cover (gutter)	Dr Structure Cover, Type R, Modified (MDOT Cover R)	7076Z Frame w/7075M1 Grate	
Water Valve (Gate) Box Assembly	Gate Valve and Box, ___ inch, Modified	8560	
Monument Box Assembly	Monument Box, Modified	8360Z Frame w/8360A Cover	

Provide frames and covers with machined bearing surfaces. Sanitary sewer covers shall be gasketed in flood prone areas as shown on the plans or as directed by the PSAA.

Provide manhole covers labeled with "CITY OF ANN ARBOR" and "WATER" or "STORM" or "SANITARY" whichever is applicable. Use the City's custom logo in use at the time of the project (see drawings attached).

Use Dr Structure Cover, Type Q, Special for all sanitary sewer manhole covers unless otherwise directed by the Engineer.

Frames and covers for monument boxes may be provided by the City of Ann Arbor should they be available and, if so, the Contractor must make arrangements with the City to receive from the its W.R. Wheeler Service Center located at 4251 Stone School Road and transport them to the project site. Should monument boxes not be available from the City the Contractor must make arrangements to furnish.

c. Construction. The Contractor shall store materials on site and/or at locations arranged by the Contractor, subject to the approval of the Engineer. The Contractor shall not store materials or equipment, including metal castings and steel plates, on any lawn areas.

Perform work related to **Gate Valve and Box, ___ inch, Modified** and **Monument Box, Modified** in accordance with respective Detailed Specifications for each of these pay items.

d. Measurement and Payment. Measure and pay for the completed work, as described, at the respective contract unit prices using the following respective pay items:

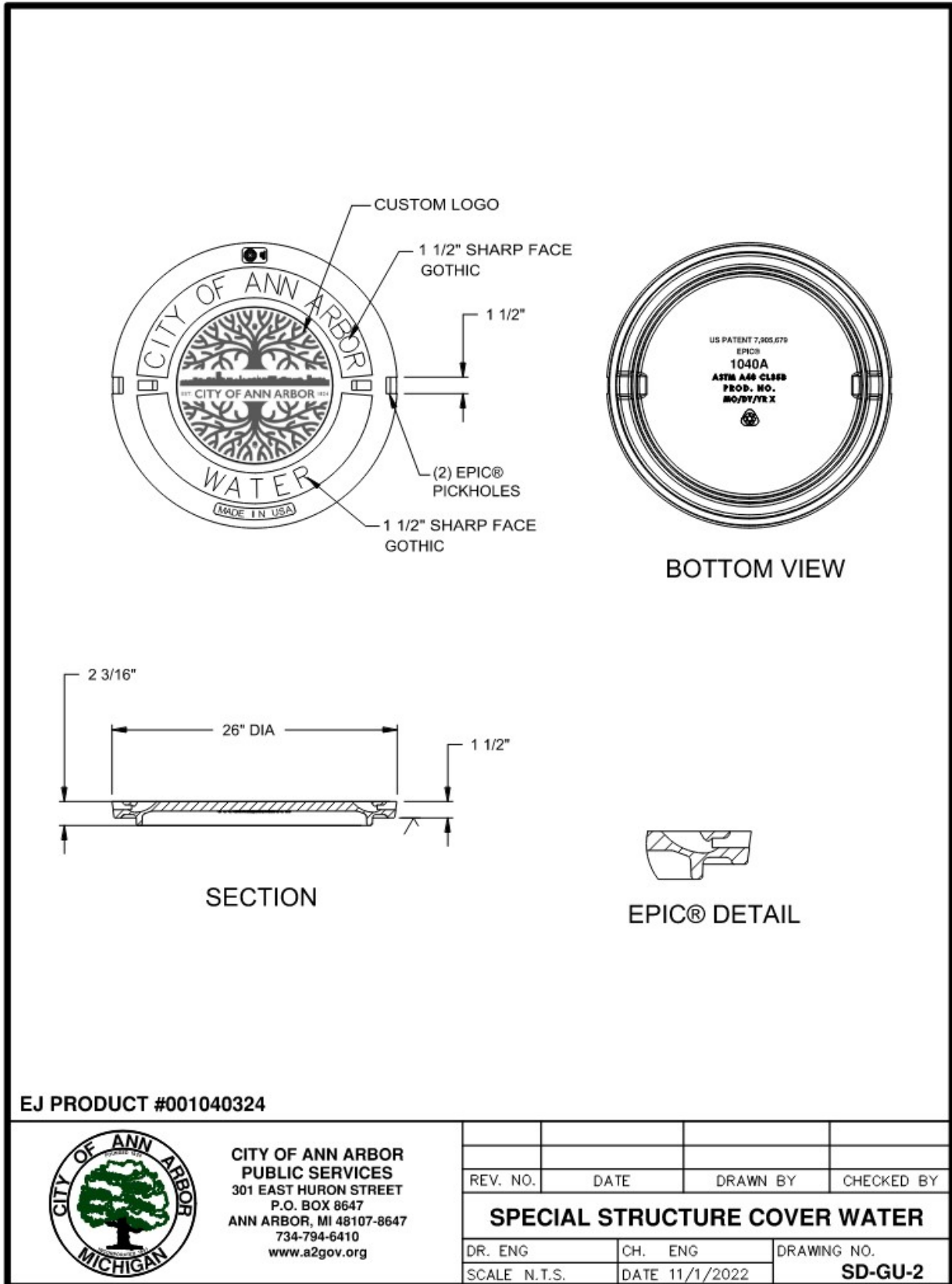
Pay Item	Pay Unit
Dr Structure Cover, Special	Each
Dr Structure Cover, Type C, Modified	Each
Dr Structure Cover, Type G, Modified	Each
Dr Structure Cover, Type E, Modified	Each
Dr Structure Cover, Type K, Modified	Each
Dr Structure Cover, Type Q, Modified	Each
Dr Structure Cover, Type Q, Special	Each
Dr Structure Cover, Type R, Modified	Each
Gate Valve and Box, __ inch, Modified	Each
Monument Box, Modified	Each

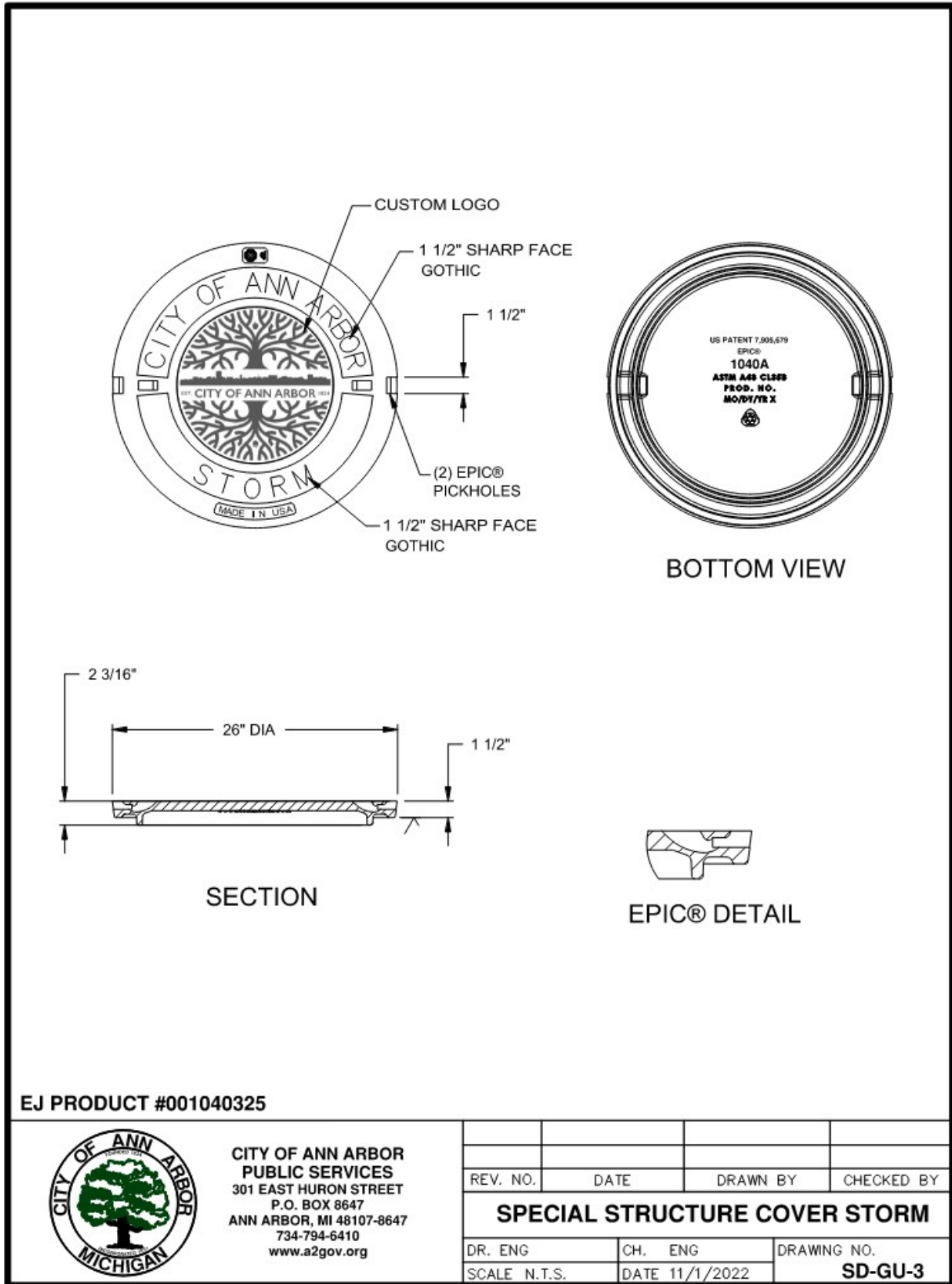
Measure **Dr Structure Cover, Special** and **Dr Structure Cover, Type __, Modified** or **Special** respectively and individually in place by their respective units each and pay for them at their respective contract unit prices, which prices include all cost for labor, equipment, and materials necessary to complete the work.

Measure and pay **Gate Valve and Box, __ inch, Modified** and **Monument Box, Modified** in accordance with respective Detailed Specifications for each of these pay items.

Payment for receiving new monument box frames from the W.R. Wheeler Center and transporting them to the project site is included in the unit prices bid for the other structure cover items of work.

The Engineer will pay the Contractor for furnishing monument box frames and covers as extra work if they are not available from the City and there is not a pay item in the contract for this work.



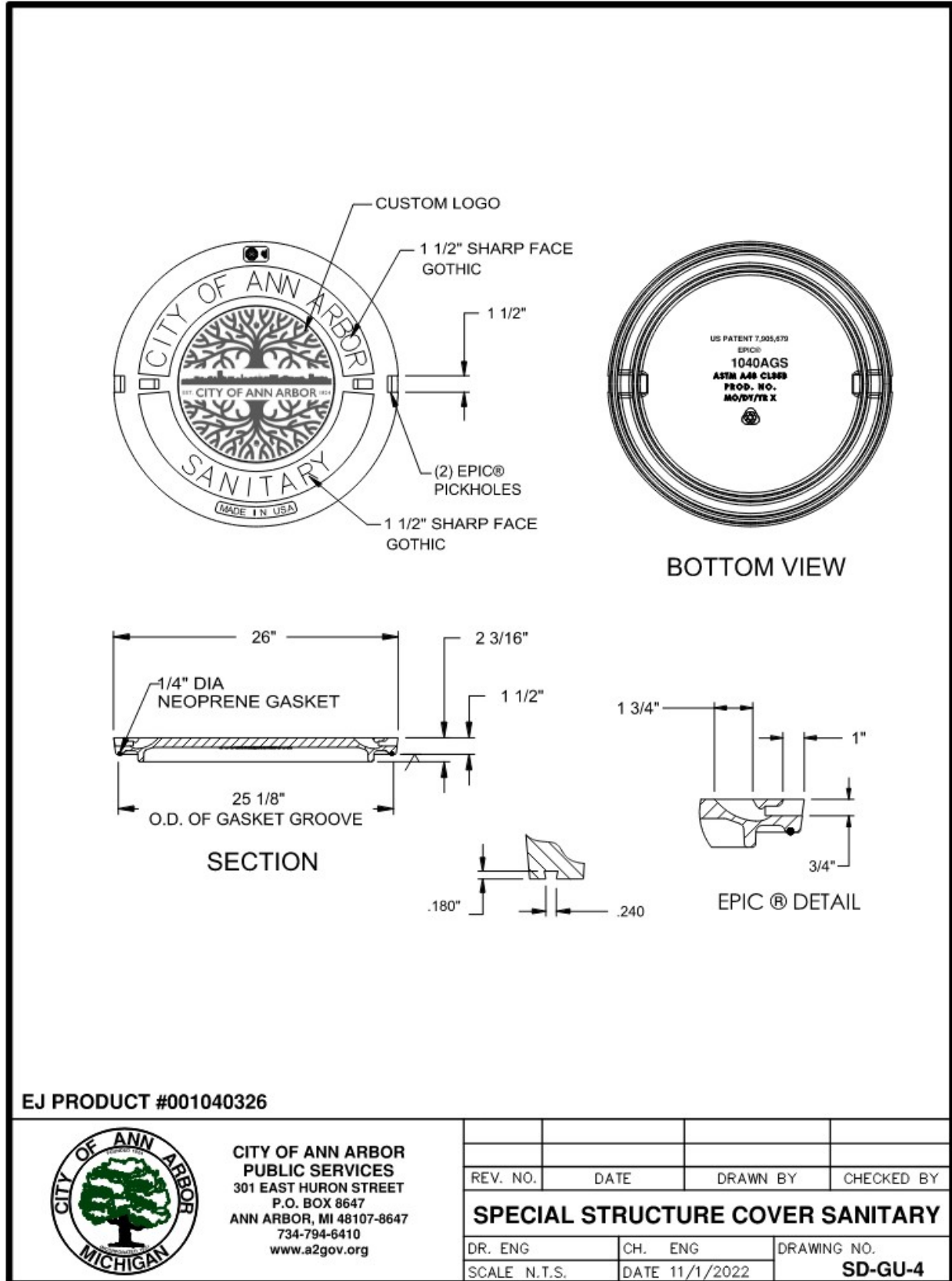


EJ PRODUCT #001040325



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PUBLIC SERVICES**
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ANN ARBOR, MI 48107-8647
734-794-6410
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REV. NO.	DATE	DRAWN BY	CHECKED BY
SPECIAL STRUCTURE COVER STORM			
DR. ENG	CH. ENG	DRAWING NO.	
SCALE N.T.S.	DATE 11/1/2022	SD-GU-3	



CITY OF ANN ARBOR

DETAILED SPECIFICATION
FOR
HOT MIX ASPHALT (HMA) MIXTURES AND APPLICATION ESTIMATE

SDA:DAD

1 of 1

03/13/23

a. Description. Perform this work in accordance with the requirements of section 501 of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction, and as herein specified.

b. Materials.

PAY ITEM	HMA MIX	APPLICATION RATE	ESTIMATED THICKNESS	BINDER PERFORMANCE GRADE	AWI (min)
HMA, 4EL	4EL (leveling)	275 lb/syd	2.5 inches	PG 58-28	N/A
HMA, 4EL	4EL (top)	275 lb/syd	2.5 inches	PG 58-28	260
⁽¹⁾ Hand Patching	4EL or 5EL	Varies maximum = 330 lb/syd	Varies maximum = 3.0 inches	PG 58-28	N/A

(1) The Contractor may use alternative top course mixes for Hand Patching with approval by the Engineer.

Submit mix designs and obtain approval from the Engineer for all HMA mixtures proposed for use. For approach and hand patching work on Major Streets, use the same HMA mixture respectively as specified for the top course unless otherwise approved by the Engineer.

Recycled asphalt materials (RAP) may be used as a substitute for a portion of the new materials required to produce the HMA mixtures specified for use. The leveling and top course mixtures must be limited to a maximum of 17 percent RAP binder by weight of the total binder in the mixture (Tier 1 category).

Use 3.5% as target air void content of for leveling and top courses and shoulders paved in the same operation as the leveling and top courses. Use 3% as a target air void content of for base courses and shoulders not paved in the same operation as the leveling and top courses.

The Performance Grade asphalt binder range for the HMA mixture shall be as noted above. Apply Bond Coat material accordance with the requirements of the Detailed Specification for HMA Paving.

Apply bond coat at a uniform rate between 0.05 and 0.15 gallons per square yard as directed and approved by the Engineer. Bond Coat is not a separate pay item; the HMA items of work for which it applies include payment for furnishing and placing bond coat.

c. Measurement and Payment. Measure and pay for this work as provided elsewhere in the contract documents.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
HOT MIX ASPHALT (HMA) PAVING

SDA:DAD

1 of 4

03/13/23

a. Description. This work consists of constructing hot mix asphalt (HMA) pavement base, leveling, and top courses in accordance with section 501 of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction, except as modified herein, and as directed by the Engineer.

b. Materials. Provide materials as specified in subsection 501.02 of the MDOT 2020 Standard Specifications for Construction, the Detailed Specification for Hot Mix Asphalt (HMA) Mixtures and Application Estimate contained in the Contract, and as included herein.

Use a hot applied pavement joint adhesive meeting or exceeding the following properties. Obtain approval from the Engineer for the hot applied pavement joint adhesive prior to performing HMA placement.

- Brookfield Viscosity, 400°F, ASTM D2669 – 4,000 to 10,000 cp
- Cone Penetration, 77°F, ASTM D5329 – 60 to 100
- Flow, 140°F, ASTM D5329 – 5mm maximum
- Resilience, 77°F, ASTM D5329 – 30% minimum
- Ductility, 77°F, ASTM D113 – 30 cm minimum
- Ductility, 39.2°F, ASTM D113 – 30 cm minimum
- Tensile Adhesion, 77°F, ASTM D5329 – 500% minimum
- Softening Point, ASTM D36 - 170°F minimum
- Asphalt Compatibility, ASTM D5329 – pass

c. Construction.

1. Equipment: All equipment must conform to subsection 501.03.A of the MDOT 2020 Standard Specifications for Construction, except as modified herein.

The Contractor must have a 10-foot long straight edge, rubber-tired backhoe (Case 580 type, or equivalent), air-compressor with the ability to develop a minimum pressure of 100 pounds per square inch and continuous rated capacity of 150 cubic feet per minute of airflow, and jackhammer available during all paving operations. The Contractor must perform any miscellaneous cleaning, trimming, material removal, and other tasks as required by the Engineer in order to ensure the proper and orderly placement of all HMA materials on this project.

The Contractor must provide sufficient rollers to achieve the specified asphalt densities.

At various times throughout the work, the Engineer may direct the Contractor to use smaller and/or lighter equipment, and to defer certain work tasks, in order to protect the grade and/or adjacent areas; including hauling units. The Contractor is not be entitled to any additional compensation for the use of smaller equipment, lighter equipment, or work task deferral.

2. Cleaning and Bond Coat Application: Cleaning and bond coat application must be performed in accordance with subsections 501.03.C and 501.03.D of the MDOT 2020 Standard Specifications for Construction, except as modified herein, and as directed by the Engineer.

The Contractor must furnish and operate throughout the construction period, vacuum-type street cleaning and utility structure cleaning equipment (Vac-All, Vactor, etc.) approved by the Engineer, and when directed by the Engineer, for street cleaning immediately prior to, and for street and utility structure cleaning after any/all paving. The cleaning equipment must be of sufficient power to remove dust, dirt, and debris from the pavement and from utility structures in and adjacent to the construction area. The Engineer will approve the vac-all or similar equipment prior to beginning the work. The equipment used must have an effective means for preventing any dust resulting from the operation from escaping into the air.

Apply bond coat at a rate of 0.05 to 0.15 gallons per square yard as directed by the Engineer. Before placing the bond coat, the thoroughly clean the existing pavement surface. The Contractor must also thoroughly clean all joints, cracks, and edges to a minimum depth of one inch with compressed air, vac-all type equipment, or other approved mechanical or hand methods, to remove all dirt, debris, and all foreign material.

3. HMA Placement: Placement must conform to subsection 501.03.F of the MDOT 2020 Standard Specifications for Construction, except as modified herein, and as directed by the Engineer.

HMA placement must not commence until a "Permit to Place" has been issued in writing by the Engineer. The Engineer will issue a "Permit to Place" after approving the aggregate base course or the adjacent, underlying layer of pavement section.

The Engineer must approve the final structure adjustments prior to the issuance of the "Permit to Place" for the top course.

Place the top course with a 1/4 inch lip along the edge of the curb and gutter/edge of metal.

All HMA thickness dimensions are compacted-in-place.

4. Paving Operation Scheduling: The Contractor must schedule the paving operation to avoid leaving longitudinal cold joints "open" overnight.

In all cases, the Contractor must pave the primary road's through-traffic lanes ("main line") first, from point-of-beginning to the point-of-ending. All other paving including, but not limited to; acceleration and deceleration lanes, intersection approaches, and center left-turn lanes must be paved following completion of main line paving, unless authorized by the Engineer prior to the placement of any pavement.

5. Rate of Paver Operation: Maintain a paving machine rate of travel so that HMA placement and paving operation is continuous; resulting in no transverse cold joints. The rate of travel; however, must never exceed 50 feet per minute.

The Contractor must furnish and operate enough material, equipment, and hauling units to keep the paving machine(s) moving continuously at all times. Failure to do so will be cause for the suspension of paving operations until the Contractor can demonstrate to the satisfaction of the Engineer that it has dedicated sufficient resources to perform the work in accordance with the project specifications.

6. Longitudinal and Transverse Joints: These joints must conform to subsection 502.03.F of the MDOT 2020 Standard Specifications for Construction, and as specified herein.

For mainline HMA paving, the width of the mat for each pass of the paver must be not less than 10.5 feet, or greater than 17 feet, except as noted in the plans and as directed by the Engineer. The Engineer will direct the layout of all HMA longitudinal joints during construction.

Prior to placing the adjacent paving pass on the leveling and/or top courses of HMA, the Contractor must cut and remove 6 to 8 inches of the previously placed pavement at the free edge of the pavement by means of a coultter wheel or other Engineer approved methods. The Engineer reserves the right to reject any method(s) for cutting the pavement that does not provide a vertical and satisfactory edge, free of tearing, bending, or other deformations, as determined by the Engineer. Any method(s) employed by the Contractor must be completely effective. The cut edge must have a uniform bead of pavement joint adhesive applied to the full height of the joint. The removal of this HMA material and resulting edge must be approved by the Engineer prior to proceeding with the placement of the succeeding pass of HMA. Base courses of HMA and its vertical edge will have bond coat applied in accordance with subsection 501.03.D.

7. Feather Joints – Construct feather joints to vary the thickness of the HMA from zero inches to the required paving thickness at the rate of approximately 1.5 inches over a distance of 10 feet, or as directed by the Engineer. The Contractor must rake the larger pieces of aggregate out of feather joints prior to compaction.

8. Butt Joints: Construction of butt joints, where directed by the Engineer, must conform to subsections 501.03.C.3 and 501.03.C.4 of the MDOT 2020 Standard Specifications for Construction, except as modified herein.

When the Engineer specifies or directs placement of a butt joint, remove the existing HMA surface to the thickness of the proposed overlay, or full-depth, as directed by the Engineer, for the full width or length of the joint. The HMA material must be saw cut to the directed depth along the pavement edge or removal line to prevent tearing of the pavement surface. Cut joints that will be exposed in the completed surface must be cut with a saw or a cold-milling machine or other methods approved by the Engineer. Joints that will be covered by HMA must be cut with a saw, a cold-milling machine, or other methods approved by the Engineer.

9. Rakers: The Contractor must provide a minimum of two asphalt rakers during the placement of all wearing and leveling courses.

10. Faulty Mixtures: The Contractor and Engineer will carefully observe the paving operation for signs of faulty mixtures. The Contractor, at its sole expense, must remove or correct points of weakness in the surface prior to paving subsequent lifts of HMA material. Such corrective action may include the removal and replacement of thin or contaminated sections of pavement, segregated HMA, and any sections that are weak or unstable. Once the Contractor or his representative is notified by the Engineer that the material being placed is out of allowable tolerances, or that there is a problem with the paving operation, the Contractor must stop the paving operation at once, and will not be permitted to continue placing HMA material until again authorized by the Engineer.

d. Measurement and Payment. The contract includes no separate pay items for measurement and payment of the costs associated with meeting the requirements of this detailed specification. The Contractor must include these costs in the unit prices bid for the HMA items in the contract.

The Contractor must return any/all trucks to the plant with unused HMA remaining after the work is complete, and these trucks must be re-weighed and the corrected weight slip provided to the Engineer. There will be no payment for any unused HMA material. All weight slips must include the type of mixture (codes are not acceptable), as well as vehicle number, gross weight, tare weight and net weight.

The Engineer will not pay for any costs associated with corrections to address the placement of faulty mixtures. These costs will be the sole responsibility of the Contractor.

There is no cost to obtain a "Permit to Place".

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
CONCRETE SIDEWALK, CURB RAMP AND DRIVEWAY APPROACH

SDA:DAD

1 of 2

03/13/23

a. Description. This work consists of constructing concrete sidewalks, curb ramps, and driveway approaches of the types and locations shown on the plans in accordance with applicable sections 801 and 803 of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction, applicable standard/special details, as directed by the Engineer, and as specified herein.

b. Materials. Provided materials meeting the requirements specified in applicable subsections 801.02 and/or 803.02 of the MDOT 2020 Standard Specifications for Construction and as specified herein.

Use Concrete, Grade P-NC for driveways as specified in subsection 1006 of the MDOT 2020 Standard Specifications. Use Concrete, Grade 3500 for all types of sidewalk and curb ramps as specified in subsection 1004 of the MDOT 2020 Standard Specifications.

Provide concrete mixtures containing 6AA coarse aggregates that are either natural or limestone and meet the requirements of section 902 the MDOT 2020 Standard Specifications for Construction.

The Contractor is solely responsibility for providing specific concrete mix designs that meet the requirements of this detailed specification.

c. Construction. Perform this work in accordance with subsections 801.03 and/or 803.03 of the MDOT 2020 Standard Specifications for Construction and as required herein. The Contractor is responsible to construct all sidewalks, curb ramps, curbs, and all other concrete items within ADAAG and PROWAG compliance. Construct all curb ramps in accordance with MDOT Standard Plan Series R-28.

Place concrete sidewalks and curb ramps on a minimum of 4 inches of Granular Material Class II compacted to 95% of its maximum dry density unless otherwise directed by the Engineer.

Place driveway concrete on a minimum of 6 inches of Granular Material Class II compacted to 95% of its maximum dry density unless otherwise directed by the Engineer.

Prior to placing any concrete, the compact and trim the subgrade to the final elevation. If a cold joint is required, clean existing concrete with compressed air to expose the aggregate in the concrete.

Where indicated on the plans, horizontally saw cut curbs to provide openings for curb ramps. The Engineer will define the extent of the saw cuts both horizontally and vertically.

Install all curb ramps with detectable warning tiles. Reference the Detailed Specification for Detectable Warning Surface for additional requirements.

d. Measurement and Payment. Measure and pay for the completed work, as described, at the respective contract unit prices using the following respective pay items:

Pay Item	Pay Unit
Driveway, Nonreinf Conc, 6 inch, Modified	Square Yard
Driveway, Nonreinf Conc, 8 inch, Modified	Square Yard
Sidewalk, Conc, 4 inch, Modified.....	Square Foot
Sidewalk, Conc, 6 inch, Modified	Square Foot
Sidewalk, Conc, 8 inch, Modified	Square Foot
Curb Ramp, Conc, 6 inch, Modified	Square Foot
Curb Ramp, Conc, 8 inch, Modified	Square Foot

Measure **Driveway, Nonreinf Conc, _ inch, Modified** area respectively in place by the unit square yard and pay for them at their respective contract unit prices, which prices include the costs for all labor, equipment and materials to complete the work.

Measure **Sidewalk, Conc, _ inch, Modified** and **Curb Ramp, Conc, _ inch, Modified** area respectively in place by the unit square foot and pay for them at their respective contract unit prices, which prices include the costs for all labor, equipment and materials to complete the work.

Saw cutting is not a separate contract pay item, and payment for this work will be included in the appropriate item of work for which it applies. The Contractor shall include any/all costs for saw cutting to place concrete driveways, sidewalk and curb ramps in the respective contract unit prices bid for **Driveway, Nonreinf Conc, _ inch, Modified; Sidewalk, Conc, _ inch, Modified; and Curb Ramp, Conc, _ inch, Modified.**

Where the Engineer directs the use of high early strength concrete for pay items not specifically designated to use Grade P-NC concrete, it will separately for the additional cement. The Engineer will not pay for cement separately for pay items that designated to use Grade P-NC concrete.

Use the pay item **Subbase, CIP** to furnish, place, grade and compact bedding material beneath new and replacement sidewalks, curb ramps, and driveways.

The pay items for **Grading, Driveway Approach; Grading, Sidewalk; and Grading, Curb Ramp** respectively include earth excavation, furnishing and placement of embankment material, and preparing the grade for placement of Aggregate Base, CIP or Subbase, CIP bedding material beneath replacement and new sidewalks and curb ramps and driveway approaches as directed by the Engineer.

Measurement in place by the unit foot and payment for detectable warning tiles in curb ramps will be at the contact unit price for **Detectable Warning Surface, Modified** in accordance with the Detailed Specification for Detectable Warning Surface.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
MAINTENANCE OF TRAFFIC

SDA:DAD

1 of 5

03/14/23

a. Description. The Contractor must maintain traffic for the duration of project in accordance with subsection 104.11 and section 812 of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction, the 2011 Michigan Manual of Uniform Traffic Control Devices (MMUTCD), as shown on the plans and applicable MDOT special provisions or supplemental specifications, as directed by the Engineer, and as herein specified.

All streets included in this project will, at a minimum, remain open to traffic in one direction during construction unless otherwise approved by the Engineer.

The Contractor must maintain traffic in accordance with the following Michigan Department of Transportation (MDOT) Maintaining Traffic Typical and Work Zone Device Details apply to the project: 101-GEN-SPACING-CHARTS, 102-GEN-NOTES, 103-GEN-SIGN, WZD-100-A, and WZD-125-E. The Engineer will direct any changes or adjustments to these signing typicals and details as may be necessary to facilitate the maintenance of traffic required for the project.

The Contractor must submit a work zone traffic control plan to the Engineer in accordance with section 104 of the MDOT 2020 Standard Specifications for Construction and this detailed specification. The Engineer will have seven (7) calendar days to review the plan for acceptance or provide comments for plan revisions required to obtain acceptance. At a minimum, the plan must include the proposed ingress/egress locations for construction equipment and vehicles, traffic control devices that will be utilized to warn the motoring public of ingress/egress locations, and measures that will be taken to ensure compliance with the plan. No work will begin prior to acceptance of the work zone traffic control plan. Additional time required to obtain an accepted work zone traffic control plan will not be cause for delay or impact claims. All costs associated with obtaining an acceptable plan, providing and executing all parts of the accepted plan including required traffic control devices, or resolving an incomplete or unacceptable plan will be borne by the Contractor.

Permanent pavement marking items are included in the contract and must be placed per the MDOT 2020 Standard Specifications for Construction prior to the removal of any devices required to temporarily maintain traffic during construction, and prior to opening the project to traffic unless otherwise approved by the Engineer.

The Contractor must notify the Project Engineer a minimum of 10 business days prior to the implementation of any lane closures.

These maintaining traffic provisions are subject to change in the event of special community activities.

b. Materials. Materials for all devices used to temporarily control and maintain traffic must meet the requirements of section 812 of the MDOT 2020 Standard Specifications for Construction, the MMUTCD, and the applicable MDOT typicals and details included herein.

All signs must be of sizes shown on the plans unless otherwise directed by the Engineer. Install temporary signs that are to remain in the same place for 14 days or more on driven posts. Install all other temporary signs on portable supports. All signs must have a minimum bottom height of 7.0 feet.

Channelizing devices required for all lane closures must be plastic drums. 42 inch channelizing devices are permissible at certain locations with approval from the Engineer.

c. Construction. Construction methods must meet the requirements of section 812 of the MDOT 2020 Standard Specifications for Construction.

The Contractor must furnish and place all necessary temporary traffic control devices to maintain traffic during construction. Keep all work, construction equipment, and material storage behind the curb, or behind barricades or channelizing devices, in combination with protective fencing if required to protect open excavations. Construction activities, equipment, or material storage must not in any way hinder vehicle movement or impair traffic vision. The contractor must protect all uncured surface treatment applications as required until all traffic (pedestrian, bicycle, vehicular, etc.) can access it without damage. The Contractor must install additional barricades and protective fencing at the end of each day to insure no disturbance to the work area.

Distances between warning, regulatory, and guide signs as shown on the typicals and details are approximate, and may require field adjustment, as directed by the Engineer.

The Contractor must maintain two-way traffic as shown on the typicals and details, access for local traffic on local streets, and keep all intersections open to traffic at all times, unless specifically authorized in writing by the Engineer.

The Contractor must maintain traffic such that no vehicle will be required to drive into active work areas. Remove and replace patch areas that extend more than halfway across the roadway in a manner to provide a minimum of half the pavement width at all times for maintaining traffic.

The Contractor must remove existing pavement markings and place temporary pavement markings as directed by the Engineer.

All temporary traffic/pedestrian control devices furnished by the Contractor must remain the property of the Contractor. The City will not be responsible for stolen or damaged signs, barricades, plastic drums and other traffic maintenance items. The Contractor must replace missing and/or damaged traffic control devices immediately, at no additional cost to the City.

1. Construction Influence Area (CIA). The CIA will consist of the width of the right-of-way and easements, and the limits of any advance temporary construction signing shown on the plans or applicable maintaining traffic typicals and details along the street under construction and any/all cross streets. Posted detour routes are not included as part of the CIA.

The Contractor must furnish, erect, maintain, and upon completion of the work, remove all traffic control devices within and around the CIA, and along posted detour routes, for the safety and protection of traffic. This includes, but is not limited to, regulatory and

warning signs, barricades, channeling devices and other minor devices where required by the Engineer.

The Contractor must coordinate its operations with all subcontractors, utilities, and/or other contractors performing work on this and other projects within, or adjacent to, the Construction Influence Area (CIA). The Contractor must avoid conflicts in maintaining traffic operations, signing, and orderly progress of other contract work.

2. Permits. Prior to the start of construction, the Contractor must obtain a "Right-of-Way" Permit from City of Ann Arbor Customer Services Unit. The Contractor must notify the Engineer and obtain a "Traffic Detour or Lane Closure" Permit from City of Ann Arbor Project Management Services Unit a minimum of 72 business hours prior to the implementation of any traffic shifts, lane closures and street closures. The City will waive the fees associated with these permits.

3. Work Times and Restrictions. Conduct all work Monday through Saturday between 7:00 a.m. and 8:00 p.m. unless there is plan authorized by the City prior to commencement of construction that identifies the alternate days and hours of work. Notify the Engineer a minimum of three (3) working days in advance of any required night work. Night work must have the approval of the City prior to commencement.

Only perform work on Sunday if it is of an emergency nature or if it is necessary to ensure vehicular and pedestrian traffic safety, and only perform it with prior approval by the City.

Perform no construction activities or interruptions to traffic, including lane closures, on Sundays and during the Memorial Day, Independence Day, and Labor Day holiday periods unless otherwise authorized by the Engineer. All streets and sidewalks that can be open must be open to motorized and non-motorized traffic. The Engineer will also not permit any trucking on or off site during these times.

During non-working periods, any area with uncompleted work must have plastic drums at specific locations and protective fencing, as directed by the Engineer, and at no additional cost to the project.

4. Traffic Restrictions. The Contractor must, at all times, conduct its work to insure the least possible obstruction to traffic and inconvenience to the general public, businesses, and residents in the vicinity of the work.

Do not impact traffic on major streets between the hours of 7:00 a.m. to 9:00 a.m. and from 3:30 p.m. to 6:00 p.m. unless otherwise approved by the Engineer or as specified on the Lane Closure Permit. Make all major changes in traffic control either between 9:00 a.m. and 3:30 p.m. or between 6:00 p.m. and 7:00 a.m. in order to minimize interference with rush hour traffic. All traffic controls must be in place and ready for traffic each day by 7:00 a.m. and 3:30 p.m. The Engineer will permit temporary obstruction of traffic for loading and unloading of trucks if the Contractor provides traffic regulators (flag persons) in conformance with Part VI of the MMUTCD. During temporary obstructions, a minimum of two traffic regulators are required.

Maintain access to businesses, residences, and side street(s) within the CIA for the duration of the project. The Contractor must make every effort to coordinate its

operations to minimize interruptions that may impact this access. The Contractor must notify the Engineer forty-eight (48) hours in advance of any work planned on or near business or residential driveways, and stage work so that it is part-width when it is necessary to work in these areas. The Engineer will not allow the Contractor to prohibit access to businesses and residences during any phase/stage of construction, unless agreed upon with the property owner(s). The Engineer may require traffic regulator (flag) control at its discretion and will direct the Contractor to provide it when necessary to maintain safe access to businesses, residences, and side street(s).

Lane widths will be a minimum of 9 feet wide. Contractor must schedule work in order to maintain traffic flow and under no circumstances stop traffic for prolonged periods as determined by the Engineer. The Contractor must suspend work within the CIA during peak traffic hours and/or when construction activities are unduly hampering or delaying traffic flow as determined by the Engineer.

5. Emergency Services. The Contractor must notify local police, fire departments and emergency response units a minimum of three business days (72 hours) prior to the closure of any lanes, or traffic shifts causing restricted movements of traffic or restricted access. Fire hydrants in or adjacent to the work must be kept "live" and fire fighting forces made aware of their availability at all times during construction.

d. Measurement and Payment. Measure and pay for the completed work, as described, for the maintenance of traffic using the following pay items in accordance with subsection 812.04 of the MDOT 2020 Standard Specifications for Construction and any detailed specifications or special provisions included in the Contract.

Pay Item	Pay Unit
Barricade, Type III, High Intensity, Double Sided, Lighted, Furn.....	Each
Barricade, Type III, High Intensity, Double Sided, Lighted, Oper	Each
Lighted Arrow, Type C, Furn.....	Each
Lighted Arrow, Type C, Oper	Each
Pavt Mrkg, Wet Retrflec, Type NR, Paint, 4 inch, White, Temp	Foot
Pavt Mrkg, Wet Retrflec, Type NR, Paint, 4 inch, Yellow, Temp	Foot
Plastic Drum, High Intensity, Furn	Each
Plastic Drum, High Intensity, Oper	Each
Sign Cover	Each
Sign, Type B, Temp, Prismatic, Furn	Square Foot
Sign, Type B, Temp, Prismatic, Oper	Square Foot
Sign, Type B, Temp, Prismatic, Spec, Furn	Square Foot

Sign, Type B, Temp, Prismatic, Spec, Oper	Square Foot
Traf Regulator Control	Lump Sum
 Pedestrian Type II Barricade, Temp	 Each
 _Minor Traffic Control, Max \$____	 Lump Sum

All signing and related traffic control devices deemed necessary for the maintenance of traffic on the project as shown on the applicable MDOT Maintaining Traffic Typical and Work Zone Device Details are the basis for the estimated quantities contained in the Contract, including traffic regulators, lighted arrows and minor traffic control devices.

Payment for furnishing and operating temporary traffic control devices will be for the maximum quantity in use at any one time during the entire project.

Any additional signing or maintaining traffic devices required to expedite the construction will be at the Contractor's expense unless approved by the Engineer.

Include any/all costs for transporting temporary traffic control devices in their respective contract unit prices bid for the individual traffic control items of work set up in the contract.

The Engineer will pay for temporary traffic control devices only once irrespective of the number of times moved or placed in and out of operation.

Include any/all costs for temporary traffic control devices where there is no separate pay item in the contract unit price bid for the pay item **_Minor Traffic Control, Max \$____**.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
TURF ESTABLISHMENT, PERFORMANCE

SDA:DAD

1 of 5

03/14/23

a. Description. For the work identified in this special provision paid for by the pay item Turf Establishment, Performance only, delete section 816 of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction and replace it with this special provision. The Contractor is responsible for the performance and quality of turf growth in the areas shown on the plans and as identified by the Engineer. Comply with all local, state and federal laws when completing this work.

Establish a durable, permanent, mature, perennial turf. The work consists of fundamental turf work, including but not limited to topsoiling, seeding, mulching, erosion control, maintenance, watering and repair of turf as described herein during the life of the contract and during the life of any supplemental performance bond which may ensue.

Choose and implement proven turf establishment industry practices; provide all necessary labor and equipment; select and provide all turf establishment materials; and control erosion and any subsequent sedimentation at all times.

Perform a site analysis, interpret the results and implement a turf establishment program to ensure compliance with this specification. The site analysis must take into consideration topsoil needs, fertilizer and pH requirements, seed mix, existing and future soil moisture levels, slopes and grades, required erosion control items and devices, maintenance requirements, local highway snow removal and deicing practices, and any other characteristics that influence and affect turf establishment.

Subsection 107.11 of the MDOT 2020 Standard Specifications for Construction is revised relative to the Contractor's responsibility for the repair of turf establishment work as follows. The Contractor is responsible, at no additional cost to the contract, for the repair of turf establishment work occasioned by storm events of up to 3 inches of rain in a 24 hour period as documented by local meteorological data submitted to the Engineer for review and approval. All other portions of subsection 107.11 remain unchanged.

1. Contractor Turf Establishment Experience Requirements. Ensure weed control is done by a commercial herbicide applicator, licensed by the State of Michigan and certified by the Michigan Department of Agriculture & Rural Development (MDARD) in the appropriate category to apply herbicides. Use application procedures and materials in accordance with federal, state and local regulations. Use of restricted use chemicals is prohibited. Provide appropriate documentation and secure approval from the Engineer before application of herbicides.

At least 10 working days prior to start of turf establishment, provide documentation to the Engineer, from the Contractor performing the turf establishment work, that they meet one or both of the following requirements.

2. At least one person employed by the Contractor performing the turf establishment work and assigned to the job site has a degree or certificate in Turf Management, Horticulture, or related field.

3. At least one person employed by the Contractor performing the turf establishment work and assigned to the job site has at least 5 years of experience in roadside turf establishment.

b. Materials. Provide topsoil, seed, mulch, pesticide, herbicide, mulch blankets and any other unique erosion control materials as necessary to fulfill this specification, as shown on the plans. Use additional materials, as necessary, to meet the standards set forth for turf establishment in this special provision. The use of sod on the project requires the prior approval of the Engineer and if approved, may be used at limited site locations only.

Selection of all materials is the responsibility of the Contractor with the following minimum conditions.

1. Soil. Provide furnished or salvaged topsoil, which may be blended compost, that will support vigorous growth. Ensure topsoil is humus bearing and placed at least 4 inches deep. Ensure it is free of stones larger than 1/2 inch (2 inches on freeway projects) in diameter and other debris. Trim and grade the finished slope in accordance with subsection 205.03.N of the MDOT 2020 Standard Specifications for Construction.

2. Seed. Use a seeding mixture that is composed of four or more species of perennial grass. Use only species and their cultivars or varieties which are guaranteed hardy for Michigan.

Recommended species of perennial grasses include Kentucky Bluegrass, Perennial Ryegrass, Hard Fescue, Creeping Red Fescue, Chewings Fescue, Turf-type Tall Fescue, Buffalo grass, and Alkaligrass-Fults Puccinellia distans. Select cultivars or varieties of grasses that are disease and insect resistant and of good color. Ensure that no one species in the mix is less than 5 percent, or more than 25 percent, of the mixture by weight. Do not select grass species considered noxious or objectionable, such as Quack Grass, Smooth Brome, Orchard Grass, Reed Canary Grass and others.

3. Ensure the seed is legally saleable in Michigan. Ensure the seed product does not contain more than 10 percent inert materials. Ensure the seed source is an MDOT approved certified vender.

4. Adapt the species and varieties of seed to the site conditions, to the site use, and to the soils, moisture and local climate. Site use may include, but is not limited to, detention pond, wildlife habitat, playground, wetlands, forested wetland, rural roadside, urban roadside and highly maintained front yard.

5. Ensure at least two of the species in the mixture proposed to be planted within 15 feet behind the curb or the shoulder are salt tolerant.

6. Mulch. Mulch seeded areas with the appropriate materials for the site conditions to promote germination and growth of seed and to mitigate soil erosion and sedimentation.

7. Herbicides. Comply with all federal, state and local laws. As part of the MDARD weed control application, the Contractor is required to make proper notifications and/or postings in accordance with the label and MDARD requirements for all locations that will be sprayed. Notify the Engineer at least 48 hours prior to any applications being made. Furnish

and apply herbicide(s) as needed. It is the Contractor's responsibility to select the herbicide(s) and the rate at which it is used. Obtain the Engineer's approval of work methods and herbicide(s) selected prior to the application of the herbicide(s). Complete a spray log and submit to the Engineer each day an application is made.

Do not draw water from any waterway (i.e. river, ditch, creek, lake etc.) located on state, county or municipal right-of-way, for mixing with herbicides.

8. Fertilizers. Furnish and apply fertilizer(s) as needed. It is the Contractor's responsibility to select the fertilizer(s) and the rate at which it is used. Phosphorus is allowed for use only at the time of planting and when required by soil conditions. Obtain the Engineer's approval of work methods and fertilizer(s) prior to the application of the fertilizer(s).

9. Water. Furnish and apply water from an approved source at a rate to promote healthy growth.

c. Construction. The Contractor is responsible for all work and all construction methods used in completing this work. Implementation of any part of the MDOT 2020 Standard Specifications for Construction, Standard Plans or Special Details by the Contractor does not relieve the Contractor of responsibility for acceptability of the construction methods or for the quality of the work.

1. Inspection of the Work. The Contractor is responsible for all inspection of turf establishment work.

Use a Contractor's Daily Report, approved by the Engineer, to report inspections made and to document turf establishment work performed on this project. Complete and submit a Contractor's Daily Report to the Engineer when any work performed under this special provision is in progress.

Include all necessary materials documentation including tests slips, certifications, etc. with the associated Contractor's Daily Report.

The Engineer will determine the acceptability of the Contractor's Daily Report in terms of their completeness and accuracy. The Engineer reserves the right to verify all submitted measurements and computations. Failure by the Contractor to submit acceptable and timely reports to the Engineer may result in withholding of progress pay estimates on turf-related items until such time as reports are submitted and deemed acceptable.

The Engineer reserves the right to inspect the project for any reason in accordance with subsection 104.01 of the MDOT 2020 Standard Specifications for Construction, including the fulfillment of other inspection requirements such as Soil Erosion and Sedimentation Control, NPDES, etc. Inspections made by the Engineer do not relieve the Contractor of the responsibility for inspections required by this special provision or the Contractor's responsibilities for erosion control and turf establishment.

2. Erosion Control. Control erosion at all times in accordance with section 208 of the MDOT 2020 Standard Specifications for Construction. Control of soil erosion is the responsibility of the Contractor. However, ensure sedimentation controls are placed as shown on the plans or as directed by the Engineer. Continuously monitor the site for needed erosion repair from any cause as addressed in the contract. Return all eroded areas to

original grade as detailed in the contract.

Take immediate corrective action if sedimentation occurs in drainage structures or any watercourse or water containment area and stabilize all disturbed areas contributing to this sedimentation within 24 hours after the erosion occurrence. Remove sediment deposited as a result of the Contractor's inability to control the soil erosion at the Contractor's expense.

Reimburse the Department for any costs levied against the Department, such as fines, environmental costs, costs for remedies required, or any other costs as a result of the Contractor's failure to comply with this special provision and with federal, state and local laws.

3. Erosion Repair. The Contractor is responsible for all repairs and liable for all consequences (legal, monetary or other) associated with erosion or sedimentation damage to finished or unfinished work.

Report all erosion occurrences and the repairs made by the Contractor to the Engineer in the format and at the frequency required by the Engineer. Repair any erosion, displacement or disturbance to ongoing or completed work by any cause at no additional cost to the contract unless otherwise noted herein.

The Contractor is responsible and liable for all traffic control and safety measures required to repair and protect damaged turf areas. Repair any eroded area that may affect the support of the roadbed or safety of the public within 24 hours of the erosion occurrence.

Place protective devices such as barriers, directional signs/signals, temporary fence, or any other safety measures immediately after any erosion damage occurs that has the potential of endangering the public. In these instances, provide the Engineer with a written summary of the immediate action taken describing the repairs made and the safety measures taken, within 24 hours of the occurrence of the damage.

4. Mowing and Weeding. Maintain turf to a visually appealing level, and not more than 8 inches in height at any time, prior to acceptance. Weeds must be controlled to less than 10 percent of the turf establishment area at all times during construction.

5. Final Acceptance and Supplemental Performance Bond.

6. Final Acceptance Parameters. Ensure before final acceptance of the turf establishment work, all of the following minimum parameters are met throughout all exposed areas of the project designated on the plans or identified by the Engineer as turf establishment areas: there must be no exposed bare soil and the turf must be fully germinated, erosion free, weeds less than 10 percent, disease free, dark green in color and in a vigorous growing condition.

The Engineer will notify the Contractor of the dates and times of all acceptance inspections. The Contractor may accompany the Engineer during these inspections. If the Contractor does not agree with the decision made by the Engineer, the Contractor may request an inspection by a mutually agreed upon third party (Michigan State University Extension service or other). A joint inspection, to include the Engineer, the Contractor, and the third party, will be scheduled by the Engineer. Pay all expert fees and expenses charged by the third party.

7. Supplemental Performance Bond. In the event that all contract items of work are completed, including the placement of all turf establishment items of work, and the final acceptance of the project is delayed because the final acceptance parameters for the turf establishment work have not been fully met; the Contractor may propose to the Engineer the use of a supplemental performance bond.

The bond serves to secure the successful completion of turf establishment work and fulfillment of all final acceptance parameters for the turf establishment work. Ensure the supplemental performance bond, in all respects, is satisfactory and acceptable to the Department and executed by a surety company authorized to do business with the State of Michigan.

Ensure the bond is in an amount equal to 50 percent of the turf establishment work items covered by this special provision. Ensure the bond remains in place for two growing seasons. At the discretion of the Engineer, the bond may be reduced on a prorated basis as portions of the areas designated for turf establishment on the project meet the final acceptance parameters.

d. Measurement and Payment. Measure and pay for the completed work, as described, at the contract unit price using the following pay item:

Pay Item	Pay Unit
Turf Establishment, Performance	Square Yard

Measure **Turf Establishment, Performance** area in place by the unit square yard and pay for them at the contract unit price, which prices include the costs for all labor, equipment and materials to complete the work. It also includes installing, maintaining, inspecting, repairing and meeting the acceptance parameters for turf establishment specified in this detailed specification together with preparation, updating and submittal of the Contractor’s Daily Reports.

Repairs made to damaged turf establishment areas as a result of a documented storm by local meteorological data resulting in rainfall amounts of more than 3 inches in a 24-hour period will be paid for as an increase to original quantities in accordance with subsection 109.05 of the MDOT 2020 Standard Specifications for Construction.

The following schedule of payment applies to work performed in accordance with this special provision. Upon completion of topsoil surfacing stage, 50 percent of the authorized amount for **Turf Establishment, Performance** will be paid to the Contractor. The remaining 50 percent of the authorized amount will be paid upon completion of all other work necessary to comply with this special provision and to meet all final acceptance parameters for **Turf Establishment, Performance** or at such time as the supplemental performance bond is accepted by the Department.

The supplemental performance bond and all costs associated with turf establishment work performed during the duration of the performance bond will not be paid for separately. These costs which may include, but are not limited to, mobilization, traffic control devices, and the required permit insurance are included in the unit price bid for **Turf Establishment, Performance**.



CITY OF ANN ARBOR ENGINEERING

RESEARCH PARK DRIVE

BID No. 23-10, FILE No. 2022-035

SHEET LIST TABLE	
SHEET NUMBER	SHEET TITLE
1	COVER
2	LEGEND
3	NOTES
4	OVERALL PLAN
5-8	HORIZONTAL ALIGNMENT
9-13	TYPICAL SECTIONS
14	SOIL EROSION & SEDIMENTATION CONTROL
15	PAVEMENT CORES LOGS
16-19	REMOVALS
20-27	ROAD PLAN & PROFILES
28-29	DETAIL GRADES
30-33	PAVEMENT MARKING PLAN
34-41	MAINTENANCE OF TRAFFIC

MICHIGAN DEPARTMENT OF TRANSPORTATION (MDOT) STANDARD PLANS

WHERE THE FOLLOWING ITEMS ARE CALLED FOR ON PLANS, THEY ARE TO BE CONSTRUCTED ACCORDING TO THE MDOT STANDARD PLANS GIVEN BELOW.

ROAD STANDARD PLANS

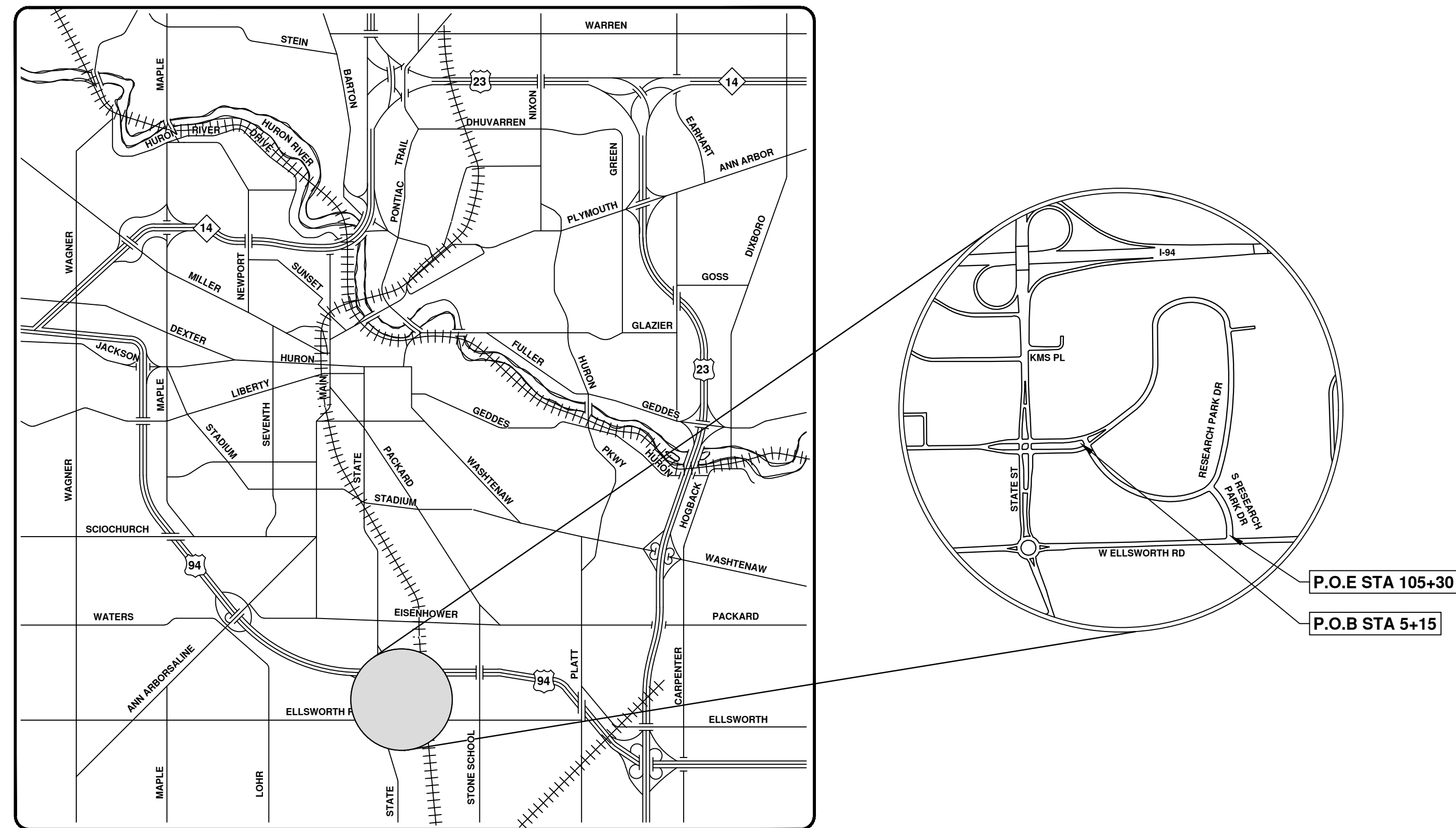
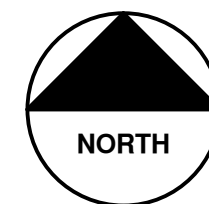
R-100-1 SEEDING AND TREE PLANTING *

TRAFFIC AND SAFETY STANDARD PLANS

WZD-100-A GROUND DRIVEN SIGN SUPPORTS FOR TEMP SIGNS *

WZD-125-E TEMPORARY TRAFFIC CONTROL DEVICES *

* = SPECIAL DETAILS



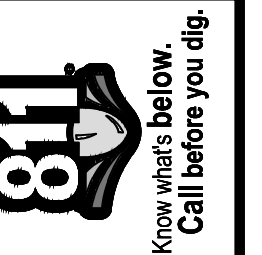
VICINITY MAP

NOTES

FOR PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMANCE WITH PUBLIC ACT 174 OF 2013, THE CONTRACTOR SHALL CALL 811 OR 1-800-482-7171 A MINIMUM OF THREE FULL WORKING DAYS, EXCLUDING SATURDAYS, SUNDAYS, AND HOLIDAYS, PRIOR TO BEGINNING EACH EXCAVATION IN AREAS WHERE PUBLIC UTILITIES HAVE NOT BEEN PREVIOUSLY LOCATED. MEMBERS WILL THUS BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE A PART OF THE "MISS DIG" ALERT SYSTEM.

THE UNDERGROUND LOCATIONS SHOWN FOR NATURAL GAS, TELEPHONE, ELECTRICAL POWER, CABLE TV AND FIBER OPTIC LINES ARE APPROXIMATE. THE CITY OF ANN ARBOR ASSUMES NO RESPONSIBILITY FOR THEIR ACCURATE REPRESENTATION IN THIS DRAWING. MISS DIG MUST BE CONTACTED PRIOR TO CONSTRUCTION TO LOCATE THESE UTILITIES.

THE CONSTRUCTION COVERED BY THESE PLANS SHALL CONFORM TO AASHTO, THE 2020 EDITION OF THE MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION, ITS DETAILS, AND THIS PROJECT'S CONTRACT DOCUMENTS. THE OMISSION OF ANY CURRENT STANDARD DETAIL DOES NOT RELIEVE THE CONTRACTOR FROM THIS REQUIREMENT.



REV.	DESCRIPTION	DATE	DRAWN	CHECKED
1	ADDENDUM NO. 1	3/14/2023	JAB	DAD

CITY OF ANN ARBOR
PUBLIC SERVICES
301 EAST HURON STREET
ANN ARBOR, MI 48106-8647
734.794.4410
www.aagov.org



CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING
RESURFACING AND RECONSTRUCTION OF RESEARCH PARK DRIVE AND
S RESEARCH PARK DRIVE

PREPARED UNDER THE SUPERVISION OF

JEREMY J. SCHROT
ENGINEER
No. 59414

JEREMY SCHROT, P.E.
PROJECT MANAGER

02 / 21 / 2023
DATE

SCALE
DRAWING No.
2022-035-1
SHEET No.
1 OF 41

J:\AA\Design\AA22005-Research Park Drive\DWG\AA22005_Cov.dwg - _a2 standard bw.stb - Plot Date: 3/14/2023 8:37:33 AM

CONSTRUCTION NOTES:

1. Driveways and entrances to buildings, real estate property, and the like shall not be blocked except for short durations and only when approved by the Engineer. Vehicular and pedestrian access shall be maintained at all times. It shall be the Contractor's responsibility to coordinate all necessary driveway closures with the property owner(s) and resident(s) in the areas of construction.
2. The location and depth of all existing utilities and service leads are to be field verified by the Contractor prior to construction.
3. Location and depth of utilities as depicted on the plans is approximate and shown according to the best information available. It is the Contractor's responsibility to excavate ahead and adjust depth of conflict utilities accordingly. Any damage to utilities is the Contractor's responsibility to avoid and/or repair as necessary.
4. The Contractor is to take special care to protect the existing water main and be responsible for maintaining consistent water service.
5. During non-working hours no trench shall remain open; any open trench shall be properly secured with protective fencing. This work will not be paid for separately, but shall be included in "General Conditions, Max \$ _".
6. Trenches for new water services shall be excavated to MIOSHA and City of Ann Arbor Public Works requirements.
7. City of Ann Arbor Public Works will install the corporation and copper service lead(s) to transfer the connection(s). If an existing water service is found to be failing or is not copper, the lead will be replaced to the curb box by Public Works.
8. For the installation of corporations, or any other related activities, the Contractor shall not receive additional compensation for delays due to the scheduling of or coordination with the City of Ann Arbor Public Works.
9. "No Parking" signs shall be installed by the Contractor at locations as approved or directed by the Engineer. All signs shall be installed in accordance with the detailed specifications.
10. Postal delivery and refuse pickup service shall be maintained at all times by the Contractor.
11. Where street curbs are undermined due to construction activities, they shall be removed and replaced as directed by the Engineer.
12. The Contractor shall be responsible for the continuous maintenance of the temporary road surface and soil erosion control measures within the construction area until the full completion of the project. This work will not be paid for separately, but shall be included in "General Conditions, Max \$ _".
13. All curb, sidewalk, driveway approach removals shall be approved by Engineer before the work is done.
14. Sawed sewer pipe connections shall be coupled with a Fernco flexible coupling and a stainless steel shear ring.
15. The location of material stock piles and on-site staging areas to be approved by the Engineer.
16. For mainline paving, the width of the mat for each pass of the paver shall be not less than 10.5' or greater than 15', as directed by the Engineer. The Engineer will direct the layout of the longitudinal joints during construction.
17. All structures shall receive new castings as directed by the Engineer, as specified on the standard casting schedule. The existing castings are the property of the City of Ann Arbor. The Contractor shall deliver to City of Ann Arbor Public Works Facility at the W.R. Wheeler Service Center located at 4251 Stone School Road.
18. Payment for drainage structure sumps, where specified, shall be included in the payment for the various drainage structure sizes and or types.
19. Where sewer and water main are to be removed & replaced or added, all pipe shall be installed using Trench Detail detailed in the specifications or shown on Plans. Backfill for sewer and water construction shall be MDT Granular Material, Class II, Modified.
20. Existing street name, guide, and regulatory signs, and mailboxes which conflict with the proposed construction shall be removed prior to construction, stored in a manner which will prevent damage, and re-set in locations as directed by the Engineer. This work will not be paid for separately, but shall be included in "Machine Grading, Modified".
21. In areas where edge drain cannot be installed in accordance with City of Ann Arbor Detail SD-TD-11, the edge drain shall be installed at the depth as indicated on the plans, or as directed by Engineer. In no case shall the edge drain be installed at a grade less than 0.50% or at a depth of less than 2" below top of proposed pavement.
22. Maintenance gravel in driveway openings can be substituted with HMA millings compacted and free of any items that could cause damage to vehicles. This work will not be paid for separately, but shall be included in "General Conditions, Max \$ _".

PERMITS REQUIRED TO BE OBTAINED BY THE CONTRACTOR PRIOR TO THE BEGINNING OF CONSTRUCTION.

PERMIT	ISSUING AUTHORITY
LANE CLOSURE PERMIT*	CITY OF ANN ARBOR ENGINEERING
"NO PARKING" SIGNS PERMIT*	CITY OF ANN ARBOR ENGINEERING
GRADING/SOIL EROSION & SEDIMENTATION CONTROL PERMIT*	CITY OF ANN ARBOR CUSTOMER SERVICE
RIGHT-OF-WAY PERMIT*	CITY OF ANN ARBOR CUSTOMER SERVICE
* NO COST TO CONTRACTOR	

PERMITS REQUIRED TO BE OBTAINED BY THE CITY OF ANN ARBOR PRIOR TO THE BEGINNING OF CONSTRUCTION.

PERMIT	ISSUING AUTHORITY
N/A	N/A

CONTACT INFORMATION

PUBLIC UTILITIES	OWNER	CONTACT
WATER		
SANITARY		
STORM	CITY OF ANN ARBOR PUBLIC WORKS W.R. WHEELER SERVICE CENTER 4251 STONE SCHOOL ROAD ANN ARBOR, MI 48108	(734) 794-6350
FORESTRY		
SIGNS SIGNALS STREET LIGHTS		(734) 794-6361
PRIVATE UTILITIES	OWNER	CONTACT
GAS	DTE ENERGY 3150 E. MICHIGAN AVE, YPSILANTI TOWNSHIP, MI 48198	ROBERT CZAPIEWSKI (734) 544-7818
ELECTRIC	DTE ENERGY WESTERN WAYNE SERVICE CENTER 8001 HAGGERTY ROAD BELLEVILLE, MI 48111	ANTHONY IGNASIAK (734) 397-4447
CABLE	COMCAST 27800 FRANKLIN ROAD SOUTHFIELD, MI 48034	RON SUTHERLAND (313) 999-8300
PHONE	AT&T 550 S. MAPLE ROAD ANN ARBOR, MI 48103	STEVEN ALLSHOUSE (734) 996-5334
FIBER OPTIC	MCI 2800 N. GLENFILLE ROAD RICHARDSON, TX 75082	DEAN BOYERS (972) 729-6016
FIBER OPTICS	WINDSTREAM 1295 S LINDEN ROAD, SUITE B FLINT, MI 48532	GREG SERICH (810) 244-3500
STREET LIGHTING	DTE ENERGY 8001 HAGGERTY ROAD BELLEVILLE, MI 48111	LANCE ALLEY (734) 397-4188



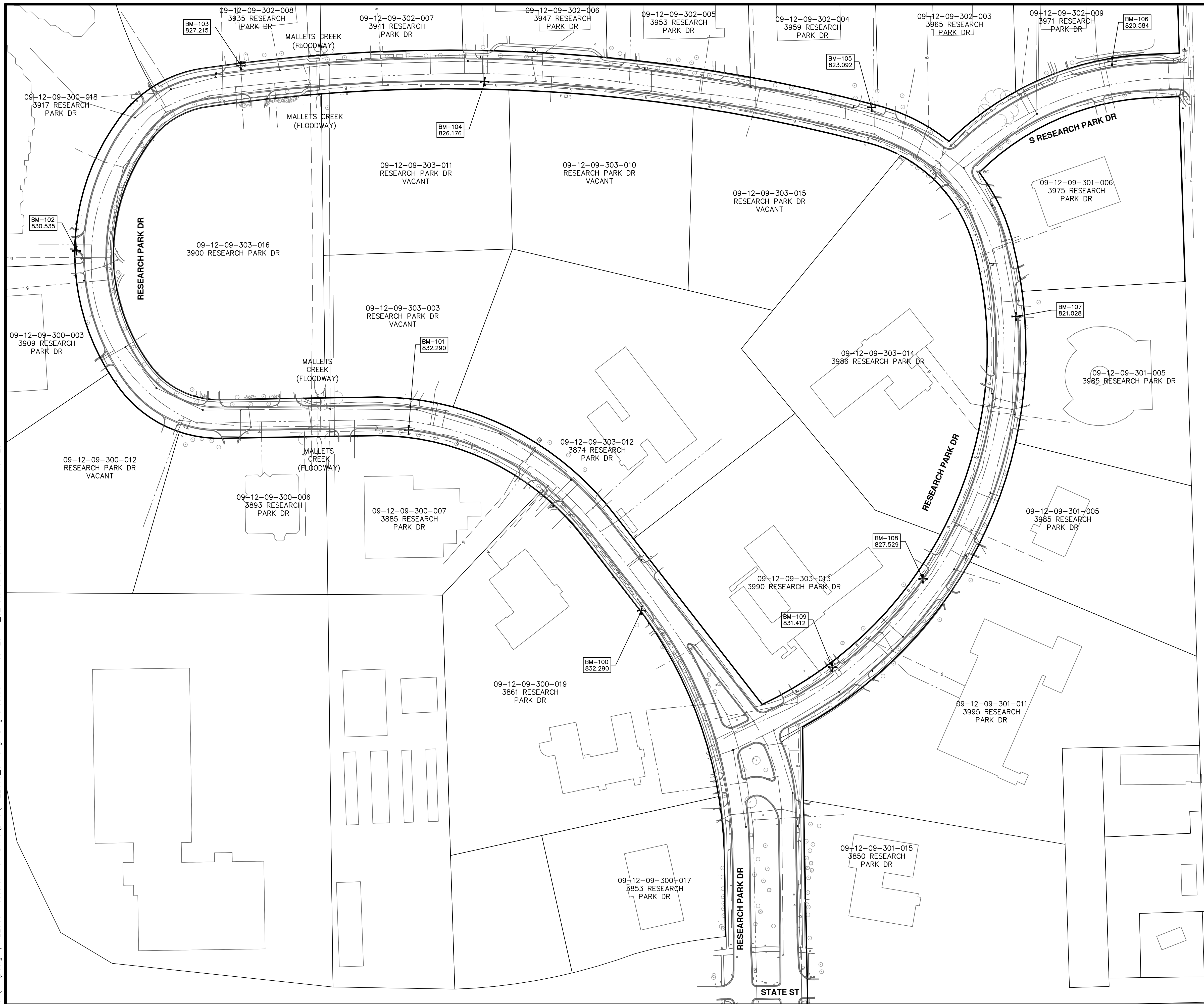
NO.	DATE	DESCRIPTION	REV.
1	3/14/2023	ADENDUM NO. 1	
			DAD CHECKED
			JAB DRAWN

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING
RESEARCH PARK DRIVE
IMPROVEMENTS PROJECT
NOTES

J:\AA\Design\AA22005-Research Park Drive\DWG\AA22005_Ovr.dwg Dwg Created: 10-Feb-23 - _a2_standard.bw.stb - Plot Date: 14-Mar-23



RESEARCH PARK DRIVE BENCHMARKS		
BM#	ELEV	DESCRIPTION
100	832.290	SET SCRIBED X IN SIDEWALK. LOCATED ON NORTH SIDE OF RESEARCH PARK DRIVE IN FRONT OF BUILDING #3869, ±30' NORTHEAST OF THE EDGE WESTERLY DRIVEWAY
101	832.542	SET SCRIBED X IN TOP OF CURB. LOCATED ON THE WEST SIDE OF RESEARCH PARK DRIVE IN FRONT OF BUILDING #3885, ±135' SOUTH OF THE CENTERLINE OF THE NORTH DRIVEWAY
102	830.535	SET CHISELED X IN TOP NW CORNER OF SQUARE CATCH BASIN STRUCTURE. LOCATED IN THE WEST CURB OF DRIVEWAY TO BUILDING #3915
103	827.215	SET CHISELED X IN EAST RIM OF WATER SHUT OFF. LOCATED ON THE EAST SIDE OF RESEARCH PARK DRIVE, BETWEEN SIDEWALK AND CURB NEAR THE SOUTH SIDE OF DRIVEWAY TO BUILDING #3941
104	826.176	SET MAG NAIL IN TOP OF CURB. LOCATED ON THE WEST SIDE OF RESEARCH PARK DRIVE, ±35' SOUTH OF THE CENTERLINE OF DRIVEWAY FOR BUILDING #3948
105	823.092	SET MAG NAIL IN TOP OF CURB. LOCATED ON THE EAST SIDE RESEARCH PARK DRIVE IN THE SOUTH CURB OF DRIVEWAY APRON TO BUILDING #3965
106	820.584	SET SCRIBED X IN SIDEWALK. LOCATED ON THE EAST SIDE OF RESEARCH PARK DRIVE, ±95' SOUTH OF THE BACK OF CURB OF DRIVEWAY TO BUILDING #3971
107	821.028	SET CHISELED X IN THE SOUTH RIM OF SEWER MANHOLE. LOCATED ON SOUTH SIDE OF RESEARCH PARK DRIVE, IN EAST DRIVEWAY TO BUILDING #3985
108	827.529	SET MAG NAIL IN TOP OF CURB. LOCATED ON THE NORTH SIDE OF RESEARCH PARK DRIVE, NEAR THE WEST SIDE OF EAST DRIVEWAY FOR BUILDING #3990
109	831.412	SET CHISELED X IN THE NORTHEAST RIM OF WATER SHUT OFF. LOCATED IN THE SOUTHERLY LOOP DRIVEWAY APRON NEAR WEST SIDE OF BUILDING #3990

W ELLSWORTH RD



811
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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

RESEARCH PARK DRIVE IMPROVEMENTS PROJECT

OVERALL PLAN

SCALE: 1" = 100'

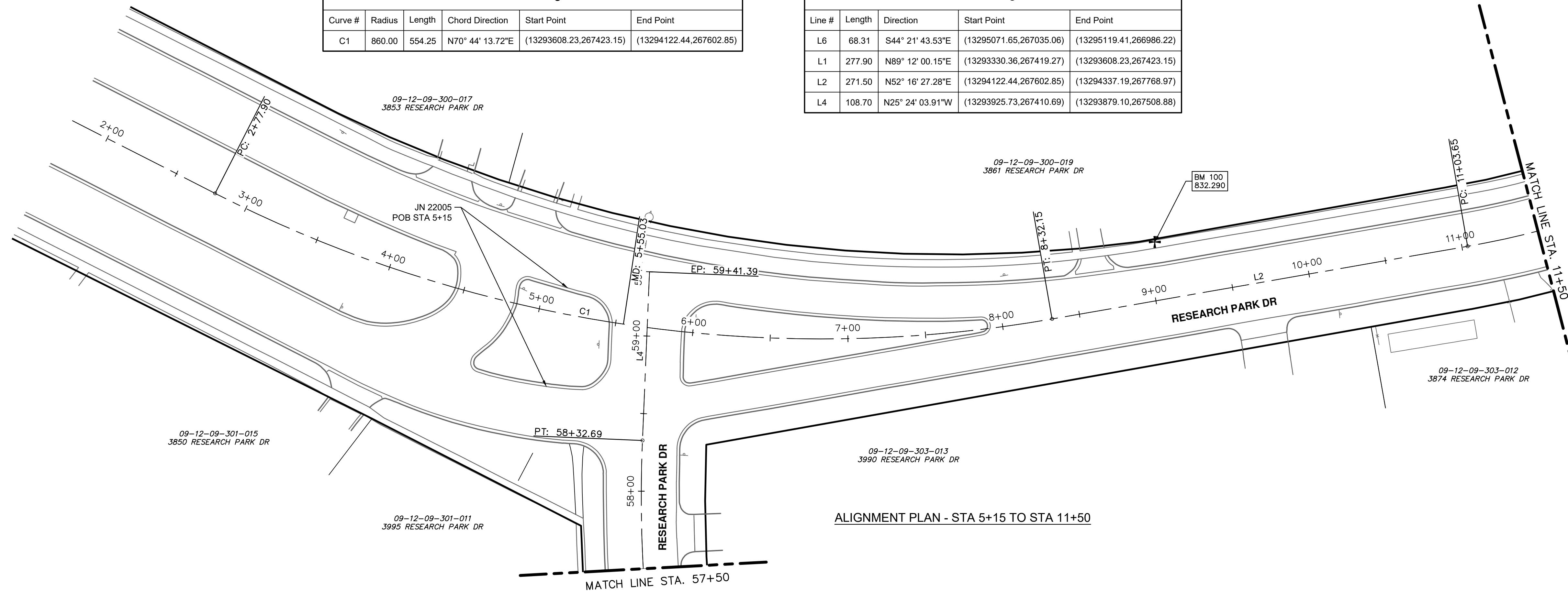
DRAWING No. 2022-035-4

SHEET No. 4 OF 41

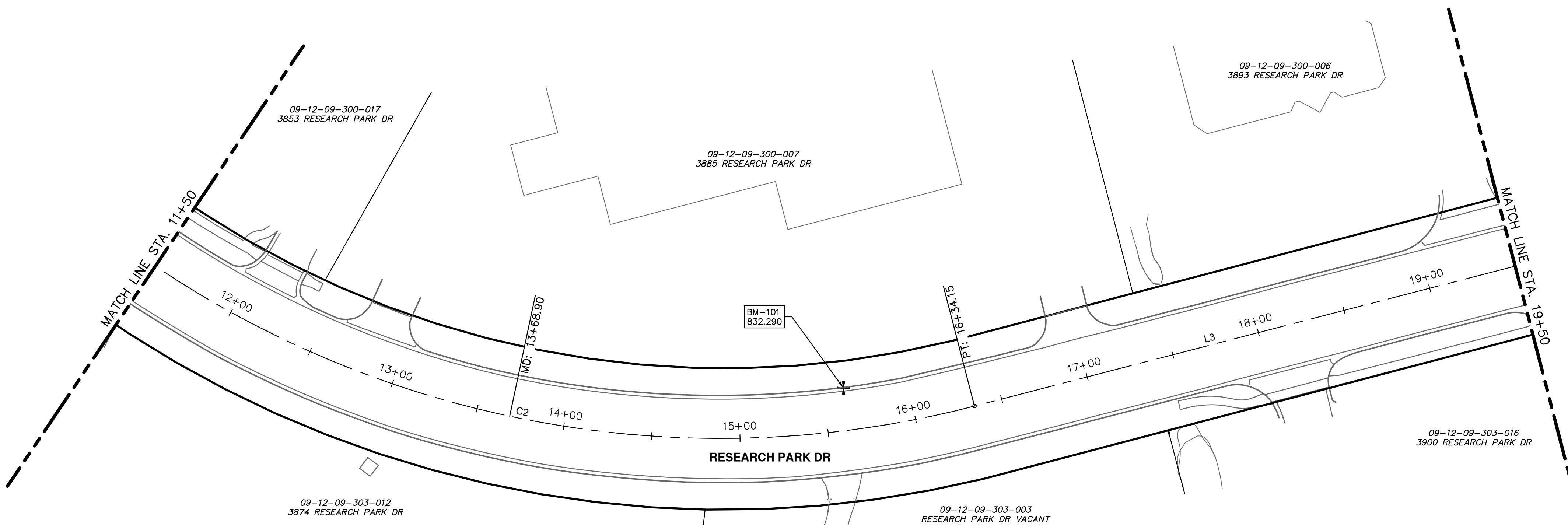
J:\AA\Design\AA22005-Research Park Drive\DWG\AA22005_Align.dwg Dwg Created: 9-Dec-22 - _a2_standard bw.sib - Plot Date: 14-Mar-23

Curve Table: Alignments					
Curve #	Radius	Length	Chord Direction	Start Point	End Point
C1	860.00	554.25	N70° 44' 13.72"E	(13293608.23,267423.15)	(13294122.44,267602.85)

Line Table: Alignments					
Line #	Length	Direction	Start Point	End Point	
L6	68.31	S44° 21' 43.53"E	(13295071.65,267035.06)	(13295119.41,266986.22)	
L1	277.90	N89° 12' 00.15"E	(13293330.36,267419.27)	(13293608.23,267423.15)	
L2	271.50	N52° 16' 27.28"E	(13294122.44,267602.85)	(13294337.19,267768.97)	
L4	108.70	N25° 24' 03.91"W	(13293925.73,267410.69)	(13293879.10,267508.88)	



ALIGNMENT PLAN - STA 5+15 TO STA 11+50



ALIGNMENT PLAN - STA 11+50 TO STA 19+50

Line Table: Alignments					
Line #	Length	Direction	Start Point	End Point	
L3	321.40	N0° 46' 35.32"W	(13294559.51,268229.91)	(13294555.15,268551.28)	

Curve Table: Alignments					
Curve #	Radius	Length	Chord Direction	Start Point	End Point
C2	572.95	530.50	N25° 44' 55.98"E	(13294337.19,267768.97)	(13294559.51,268229.91)

RESEARCH PARK DRIVE BENCHMARKS		
BM#	ELEV	DESCRIPTION
100	832.290	SET SCRIBED X IN SIDEWALK. LOCATED ON NORTH SIDE OF RESEARCH PARK DRIVE IN FRONT OF BUILDING #3869, ±30' NORTHEAST OF THE EDGE WESTERLY DRIVEWAY
101	832.542	SET SCRIBED X IN TOP OF CURB. LOCATED ON THE WEST SIDE OF RESEARCH PARK DRIVE IN FRONT OF BUILDING #3885, ±135' SOUTH OF THE CENTERLINE OF THE NORTH DRIVEWAY



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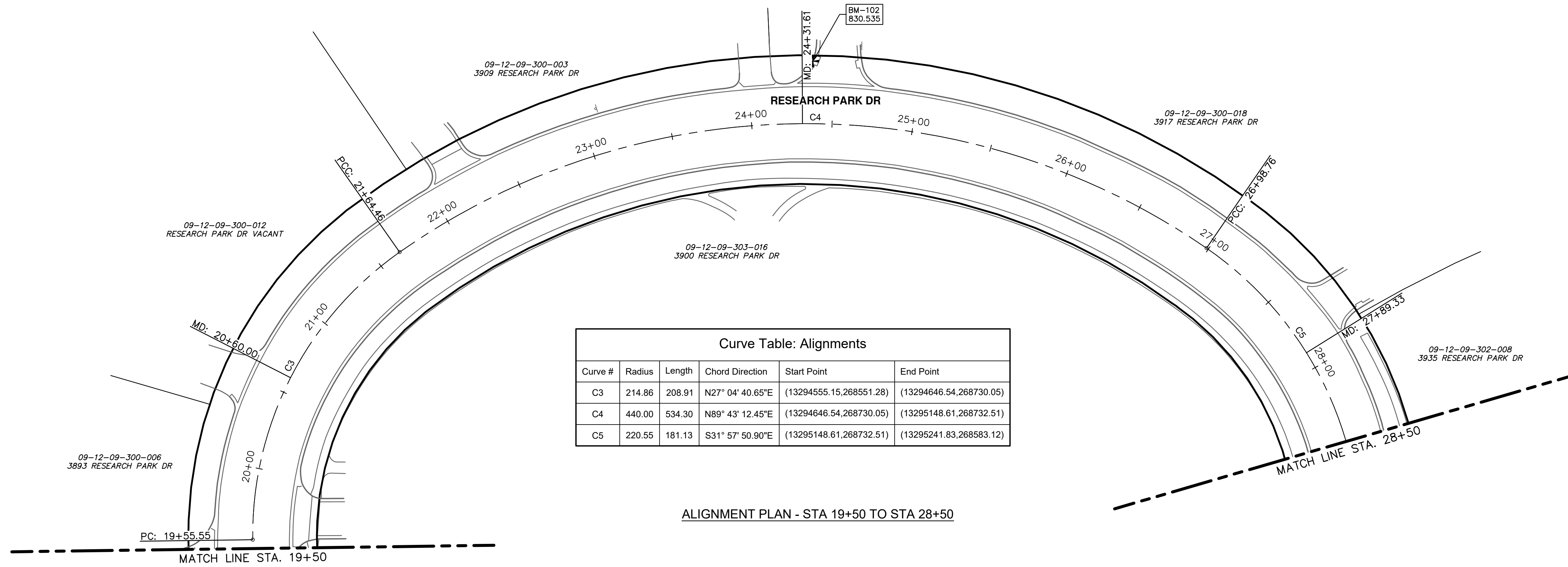
CITY OF ANN ARBOR - ENGINEERING
RESEARCH PARK DRIVE
IMPROVEMENTS PROJECT
ALIGNMENT PLAN - POB TO STA 19+50

SCALE: 1" = 40'
DRAWING No. 2022-035-5
SHEET No. 5 OF 41

REV. DESCRIPTION DATE DRAWN CHECKED

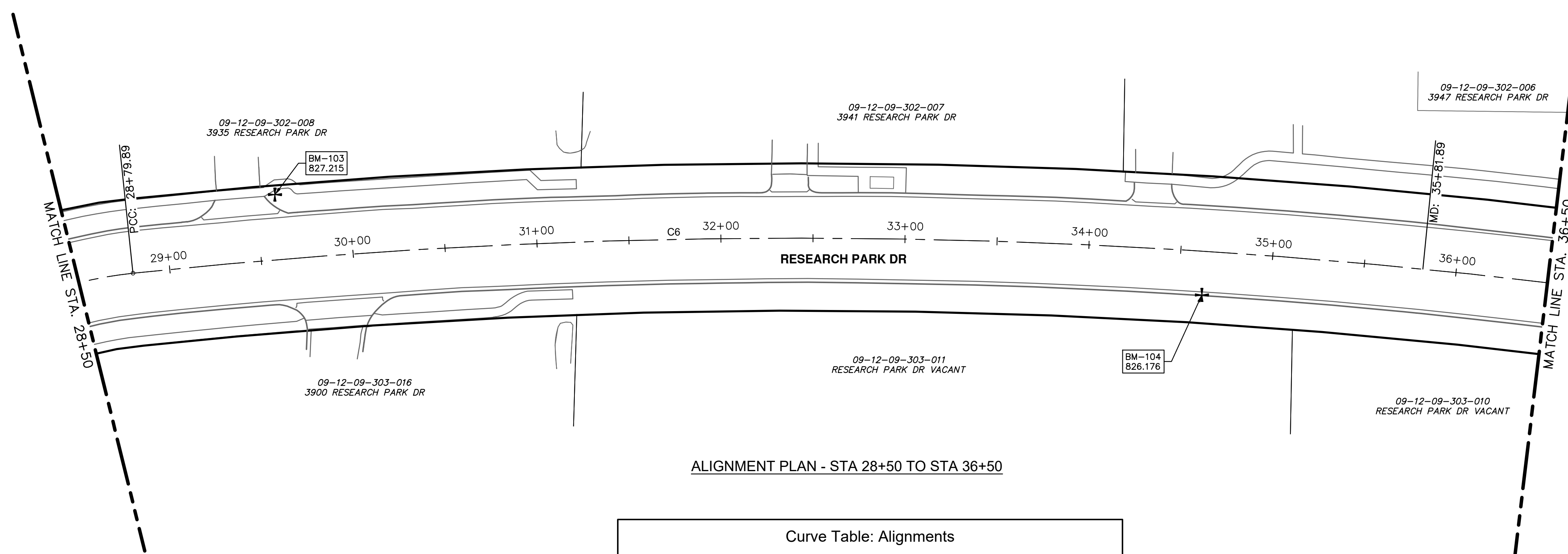
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Curve #	Radius	Length	Chord Direction	Start Point	End Point
C3	214.86	208.91	N27° 04' 40.65"E	(13294555.15,268551.28)	(13294646.54,268730.05)
C4	440.00	534.30	N89° 43' 12.45"E	(13294646.54,268730.05)	(13295148.61,268732.51)
C5	220.55	181.13	S31° 57' 50.90"E	(13295148.61,268732.51)	(13295241.83,268583.12)

ALIGNMENT PLAN - STA 19+50 TO STA 28+50



Curve #	Radius	Length	Chord Direction	Start Point	End Point
C6	3437.72	1404.00	S3° 15' 50.57"W	(13295241.83,268583.12)	(13295162.44,267191.12)

ALIGNMENT PLAN - STA 28+50 TO STA 36+50

BM#	ELEV	DESCRIPTION
102	830.535	SET CHISELED X IN TOP NW CORNER OF SQUARE CATCH BASIN STRUCTURE. LOCATED IN THE WEST CURB OF DRIVEWAY TO BUILDING #3915
103	827.215	SET CHISELED X IN EAST RIM OF WATER SHUT OFF. LOCATED ON THE EAST SIDE OF RESEARCH PARK DRIVE, BETWEEN SIDEWALK AND CURB NEAR THE SOUTH SIDE OF DRIVEWAY TO BUILDING #3941
104	826.176	SET MAG NAIL IN TOP OF CURB. LOCATED ON THE WEST SIDE OF RESEARCH PARK DRIVE, ±35' SOUTH OF THE CENTERLINE OF DRIVEWAY FOR BUILDING #3948



REV.	DESCRIPTION	DATE	DRAWN	CHECKED
1	ADDENDUM NO. 1	3/14/2023	JAB	DAD

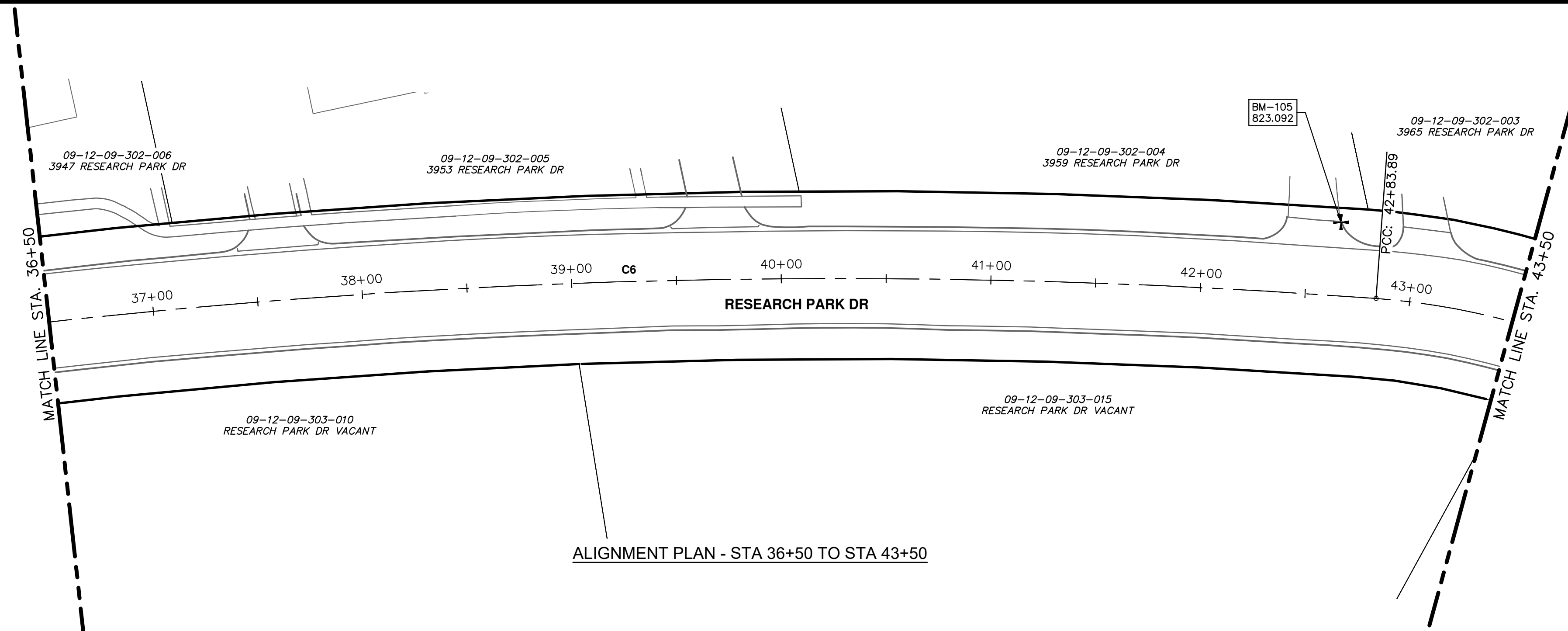
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ALIGNMENT PLAN - STA 19+50 TO STA 36+50

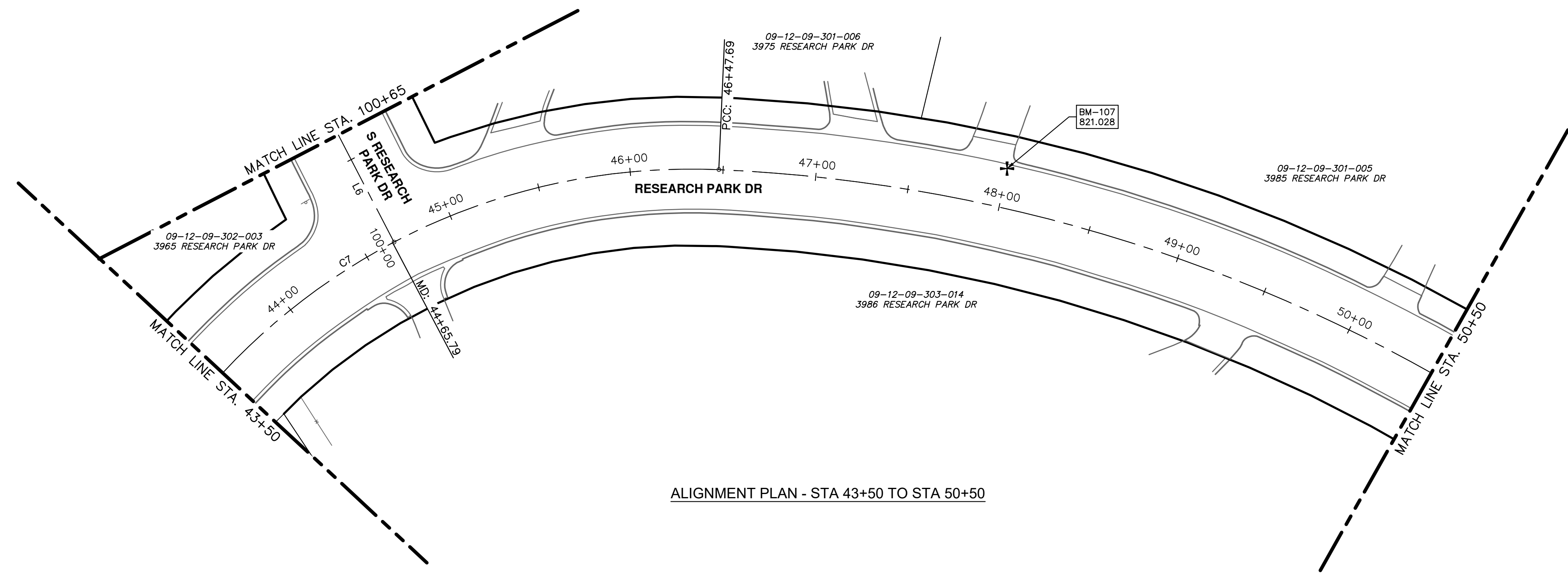
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SHEET No.

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ALIGNMENT PLAN - STA 36+50 TO STA 43+50

Curve Table: Alignments					
Curve #	Radius	Length	Chord Direction	Start Point	End Point
C6	3437.72	1404.00	S3° 15' 50.57"W	(13295241.83,268583.12)	(13295162.44,267191.12)



ALIGNMENT PLAN - STA 43+50 TO STA 50+50

Line Table: Alignments				
Line #	Length	Direction	Start Point	End Point
L6	68.31	S44° 21' 43.53"E	(13295071.65,267035.06)	(13295119.41,266986.22)

Curve Table: Alignments					
Curve #	Radius	Length	Chord Direction	Start Point	End Point
C7	343.77	363.80	S45° 16' 52.39"W	(13295162.44,267191.12)	(13294915.83,266946.92)

RESEARCH PARK DRIVE BENCHMARKS		
BM#	ELEV	DESCRIPTION
105	823.092	SET MAG NAIL IN TOP OF CURB. LOCATED ON THE EAST SIDE RESEARCH PARK DRIVE IN THE SOUTH CURB OF DRIVEWAY APRON TO BUILDING #3965
107	821.028	SET CHISELED X IN THE SOUTH RIM OF SEWER MANHOLE. LOCATED ON SOUTH SIDE OF RESEARCH PARK DRIVE, IN EAST DRIVEWAY TO BUILDING #3985



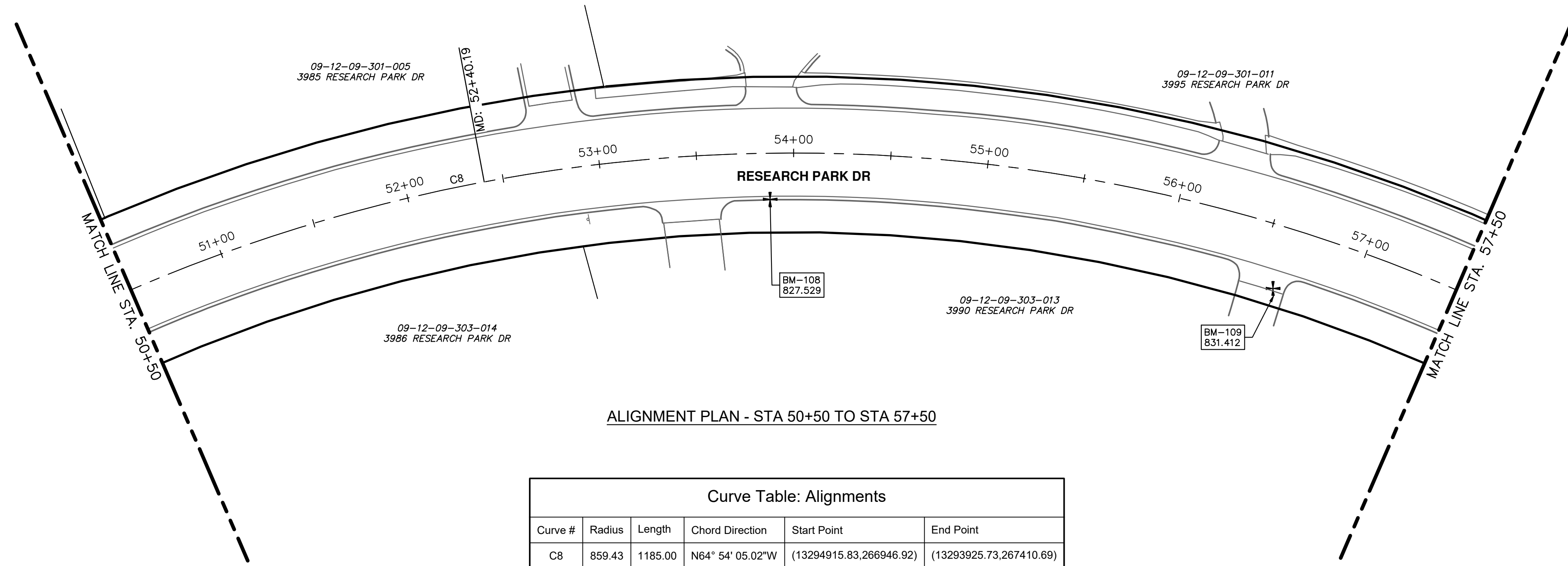
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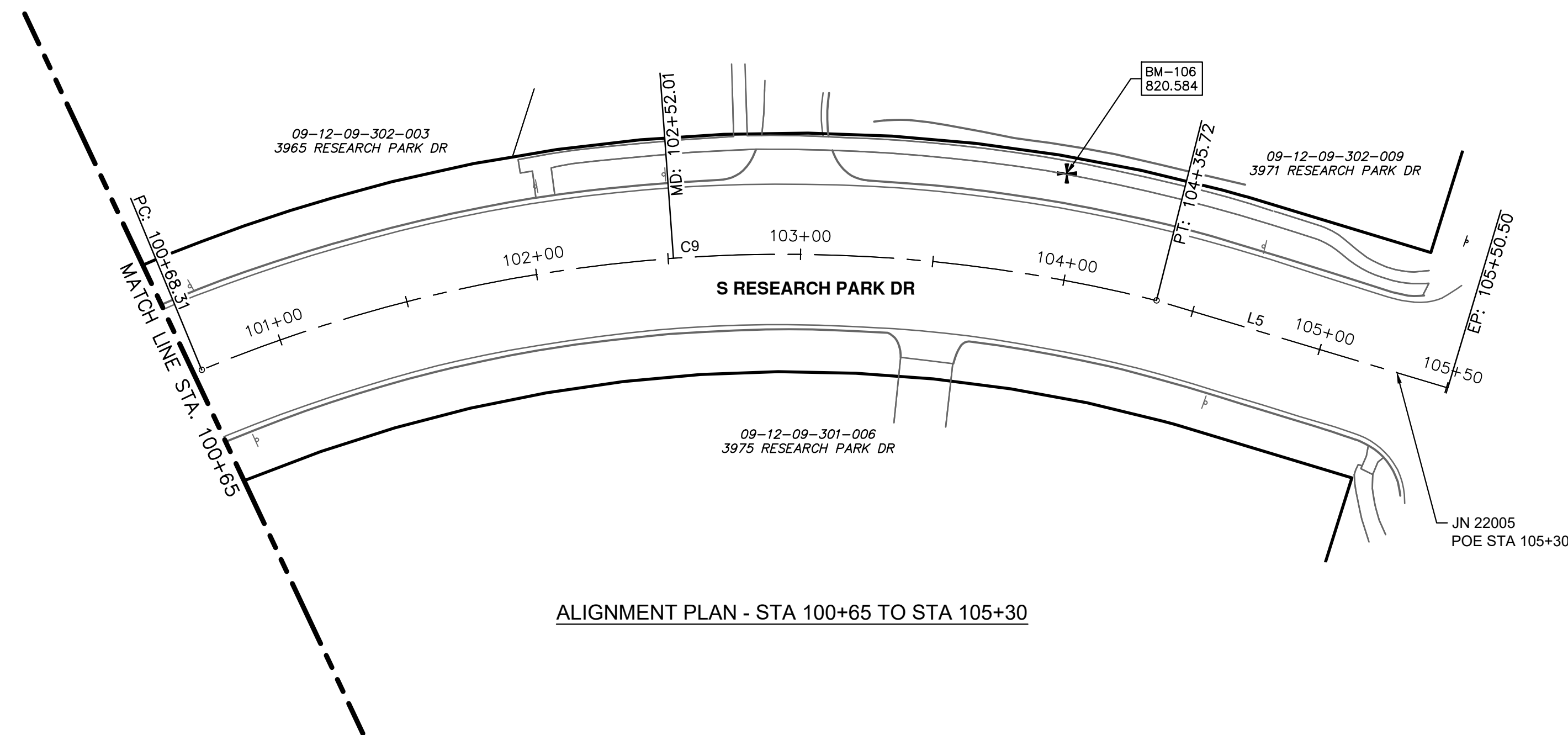
CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING
RESEARCH PARK DRIVE
IMPROVEMENTS PROJECT
ALIGNMENT PLAN - STA 36+50 TO STA 50+50
SCALE: 1" = 40'
DRAWING NO. 2022-035-7
SHEET NO. 7 OF 41

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ALIGNMENT PLAN - STA 50+50 TO STA 57+50

Curve Table: Alignments					
Curve #	Radius	Length	Chord Direction	Start Point	End Point
C8	859.43	1185.00	N64° 54' 05.02"W	(13294915.83,266946.92)	(13293925.73,267410.69)



ALIGNMENT PLAN - STA 100+65 TO STA 105+30

Line Table: Alignments				
Line #	Length	Direction	Start Point	End Point
L5	114.78	S2° 29' 53.29"E	(13295262.51,266654.58)	(13295267.51,266539.92)

RESEARCH PARK DRIVE BENCHMARKS		
BM#	ELEV	DESCRIPTION
106	820.584	SET SCRIBED X IN SIDEWALK. LOCATED ON THE EAST SIDE OF RESEARCH PARK DRIVE, ±95' SOUTH OF THE BACK OF CURB OF DRIVEWAY TO BUILDING #3971
108	827.529	SET MAG NAIL IN TOP OF CURB. LOCATED ON THE NORTH SIDE OF RESEARCH PARK DRIVE, NEAR THE WEST SIDE OF EAST DRIVEWAY FOR BUILDING #3990
109	831.412	SET CHISELED X IN THE NORTHEAST RIM OF WATER SHUT OFF. LOCATED IN THE SOUTHERLY LOOP DRIVEWAY APRON NEAR WEST SIDE OF BUILDING #3990



REV	DESCRIPTION	DATE	DRAWN	CHECKED
1	ADDENDUM NO. 1	3/14/2023	JAB	DAD

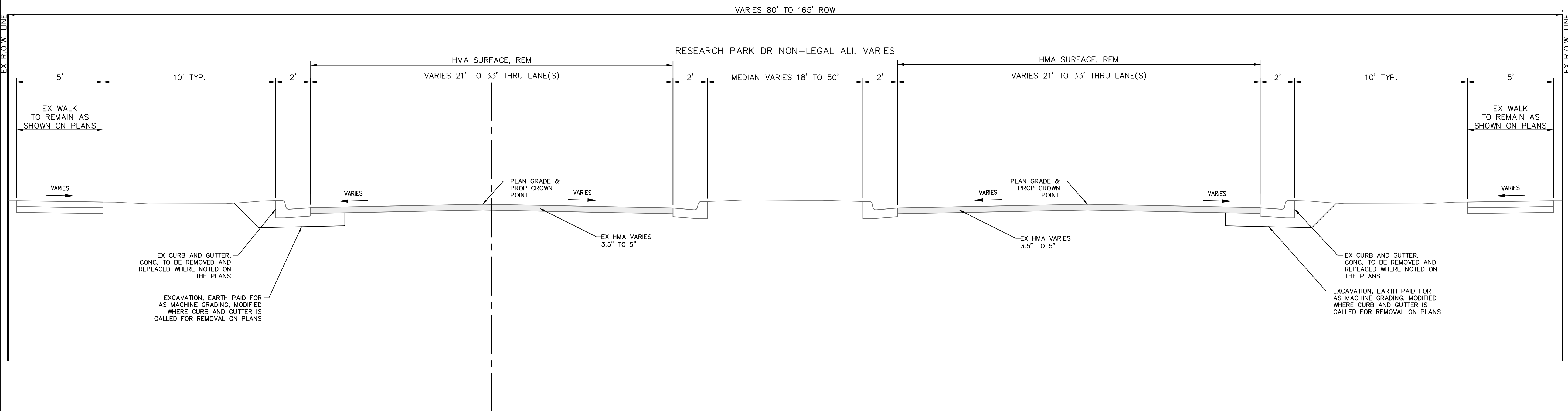
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ALIGNMENT PLAN - STA 50+50 TO POE

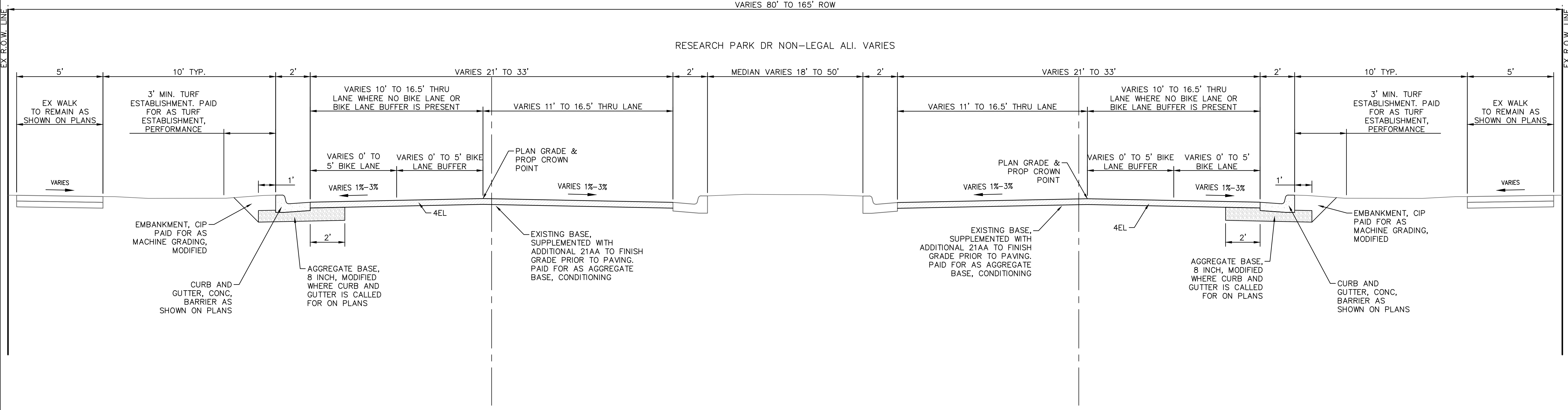
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EXISTING RESEARCH PARK DR TYPICAL SECTION

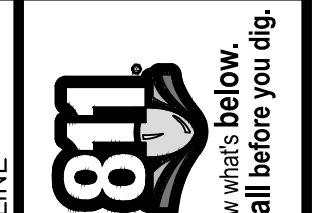
SECTION APPLIES TO:
STA 5+15 (POB) TO STA 7+25




PROPOSED RESEARCH PARK DR TYPICAL SECTION

SECTION APPLIES TO:
STA 5+15 (POB) TO STA 7+25

HMA APPLICATION ESTIMATE				
IDENT NO.	ITEM	RATE LBS PER SYD	PERFORMANCE GRADE	REMARKS
4EL	HMA, 4EL	275	58-28	MAINLINE TOP COURSE - AWI 260
4EL	HMA, 4EL	275	58-28	MAINLINE LEVELING COURSE
	* BOND COAT	0.05-0.15 GAL		

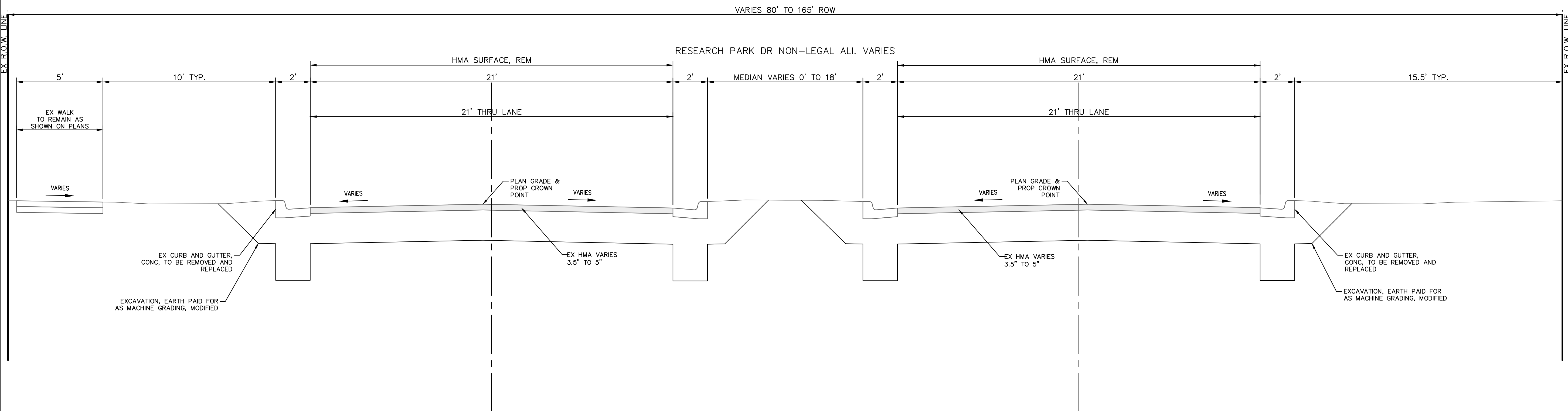


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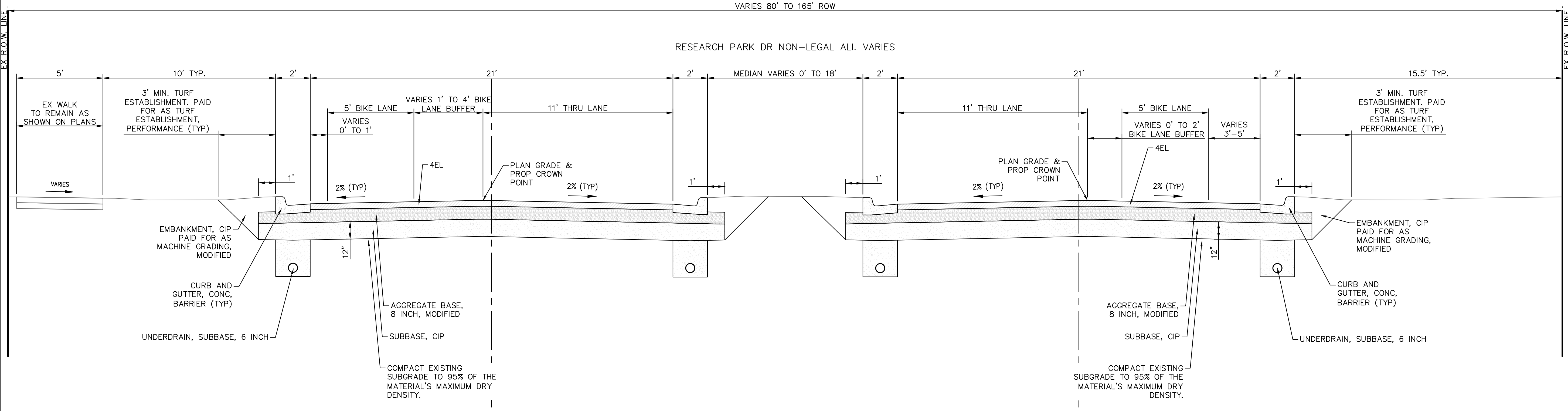
REV.	DESCRIPTION	DATE	DRAWN	CHECKED
1	ADDENDUM NO. 1	3/14/2023	JAB	DAD

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EXISTING RESEARCH PARK DR TYPICAL SECTION

SECTION APPLIES TO:
STA 7+25 TO STA 7+92



PROPOSED RESEARCH PARK DR TYPICAL SECTION


SECTION APPLIES TO:
STA 7+25 TO STA 7+92



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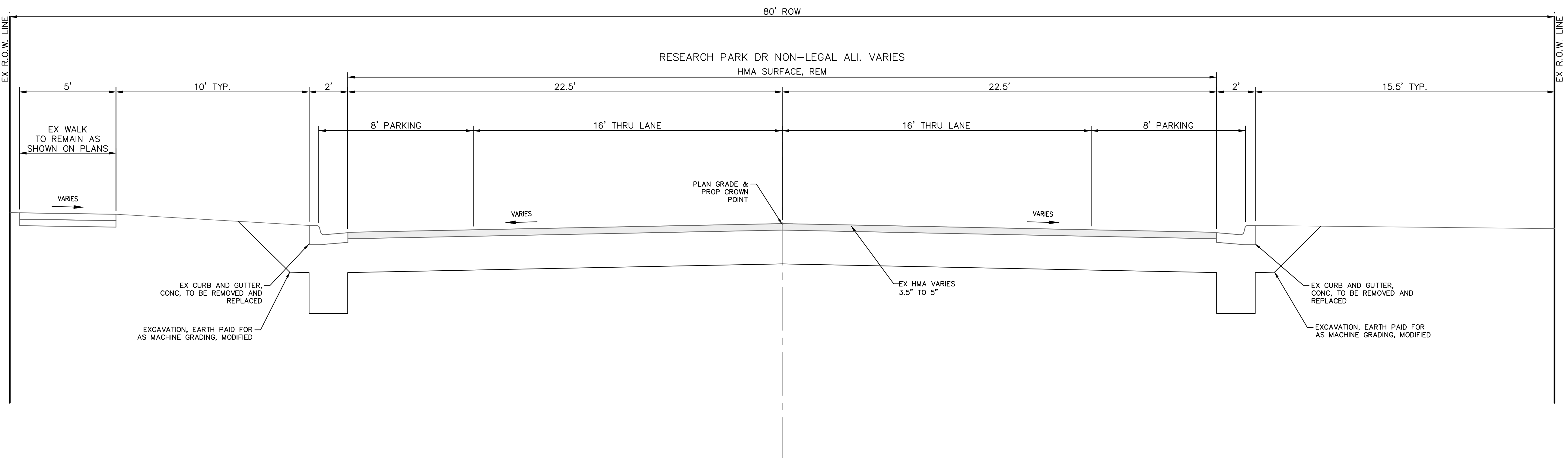
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IMPROVEMENTS PROJECT
TYPICAL SECTIONS

SCALE: 1" = 3'



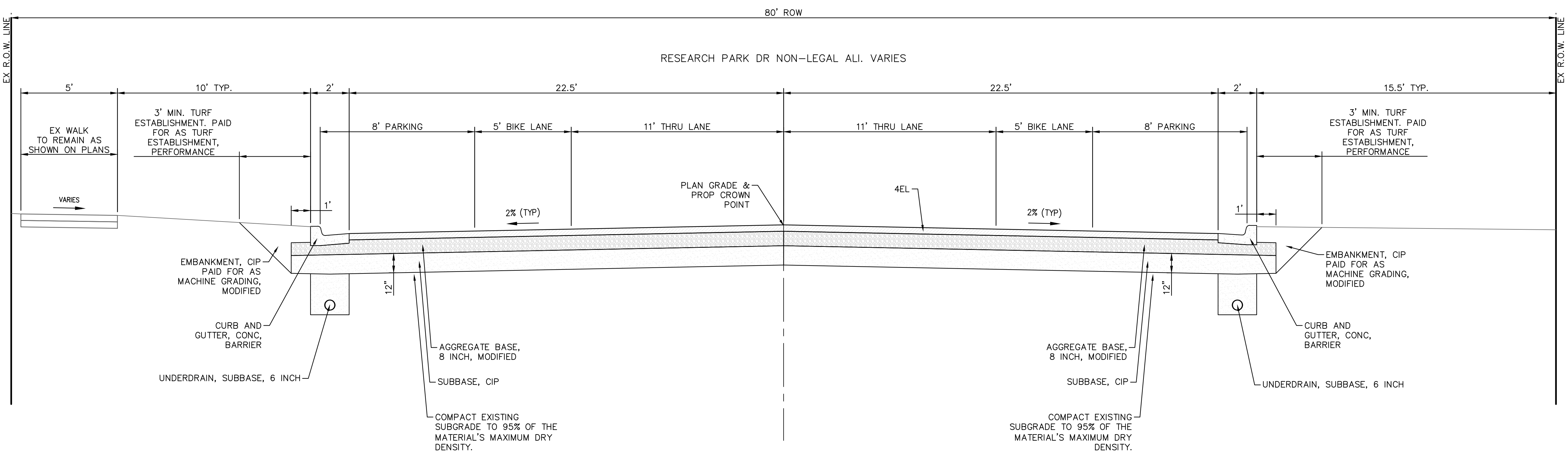
DRAWING No. 2022-035-10
SHEET No. 10 OF 41

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EXISTING RESEARCH PARK DR TYPICAL SECTION

SECTION APPLIES TO:
 STA 7+92 TO STA 17+25
 STA 39+42 TO STA 49+18



PROPOSED RESEARCH PARK DR TYPICAL SECTION

SECTION APPLIES TO:
 STA 7+92 TO STA 17+25
 STA 39+42 TO STA 49+18



REV.	DESCRIPTION	DATE	DRAWN	CHECKED
1	ADDENDUM NO. 1	3/14/2023	JAB	DAD

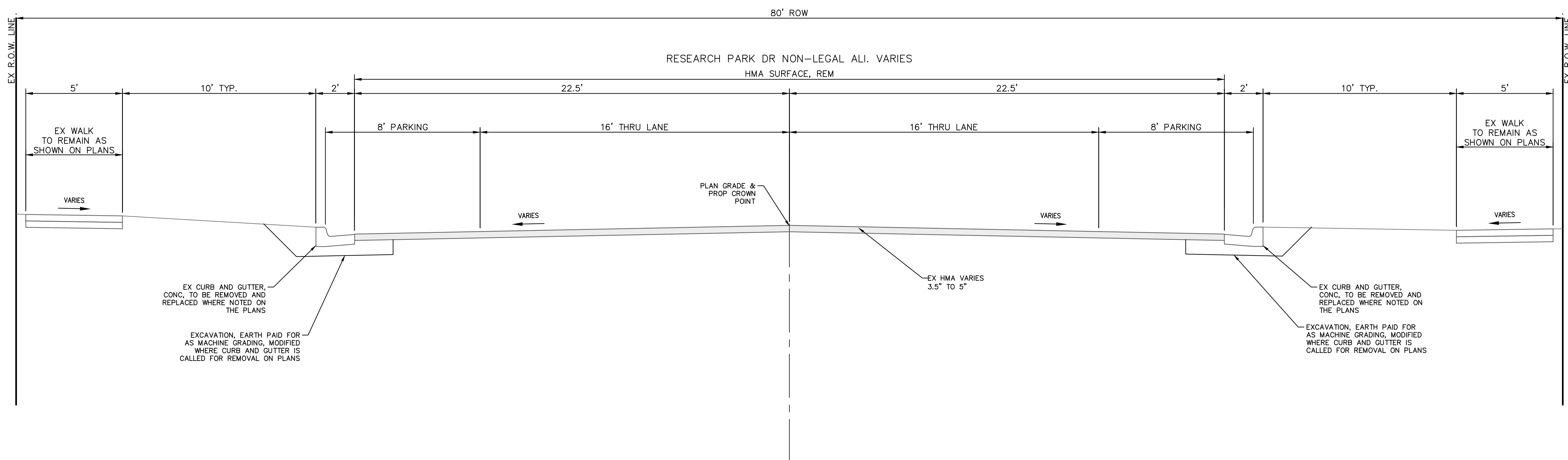
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 TYPICAL SECTIONS

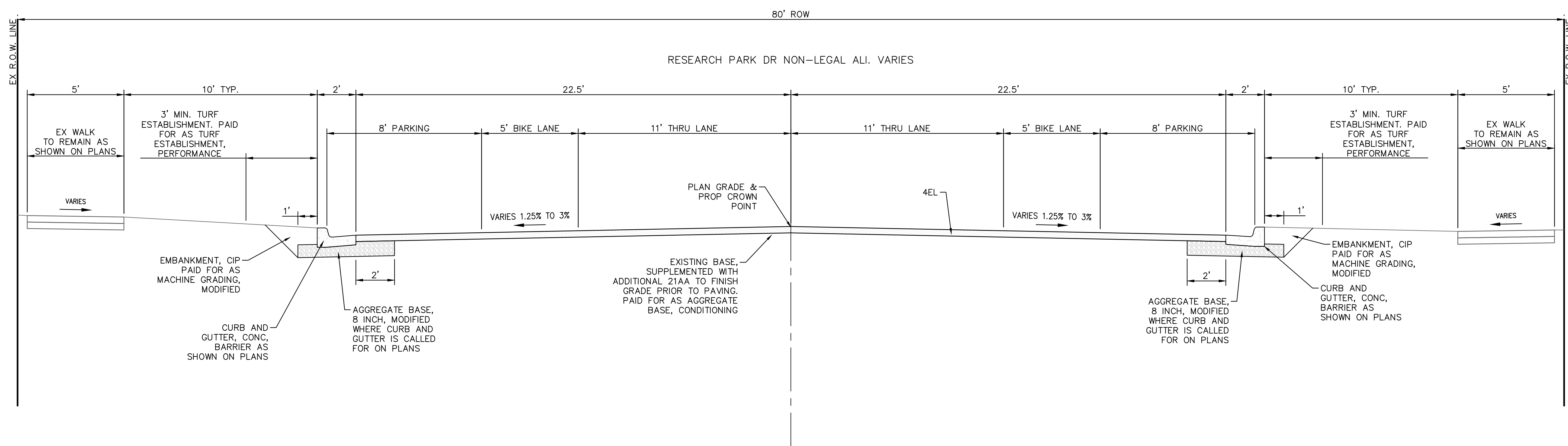
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EXISTING RESEARCH PARK DR TYPICAL SECTION

SECTION APPLIES TO:
 STA 17+25 TO STA 39+42
 STA 49+18 TO STA 57+50



PROPOSED RESEARCH PARK DR TYPICAL SECTION

SECTION APPLIES TO:
 STA 17+25 TO STA 39+42
 STA 49+18 TO STA 57+50



REV.	DESCRIPTION	DATE	DRAWN	CHECKED
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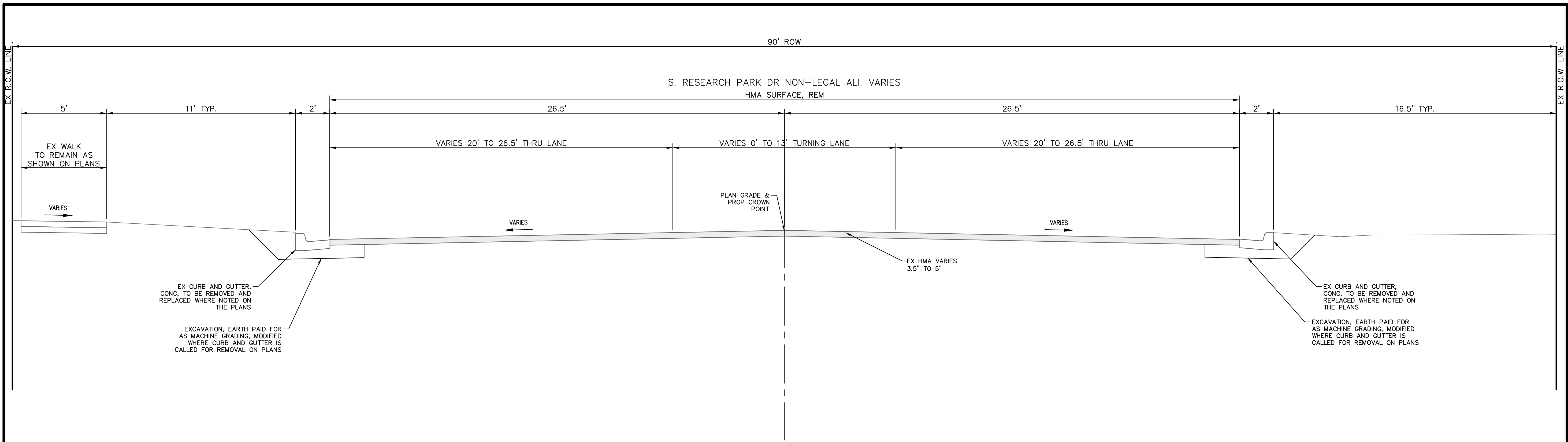
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 TYPICAL SECTIONS

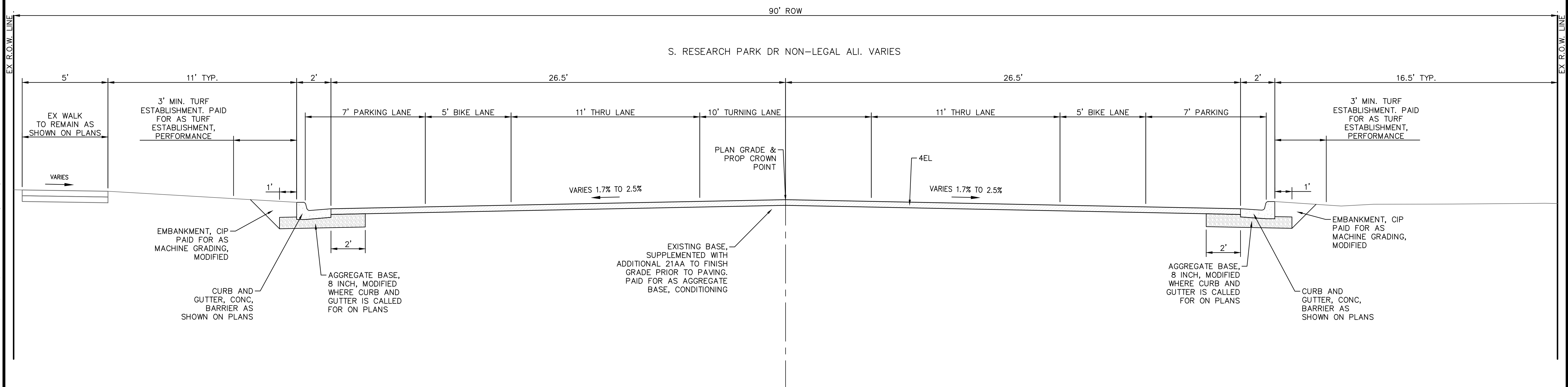
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EXISTING S. RESEARCH PARK DR TYPICAL SECTION

SECTION APPLIES TO:
STA 100+00 TO STA 105+30 (POE)



PROPOSED S. RESEARCH PARK DR TYPICAL SECTION

SECTION APPLIES TO:
STA 100+00 TO STA 105+30 (POE)

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

RESEARCH PARK DRIVE IMPROVEMENTS PROJECT

TYPICAL SECTIONS

SCALE: 1" = 3'

DRAWING No.
2022-035-13

SHEET No.

13 OF 41

GENERAL
 NOTIFY THE CITY OF ANN ARBOR SOIL EROSION CONTROL OFFICE 48 HOURS PRIOR TO BEGINNING WORK ON THE PROJECT. PHONE: 734-794-6265.

1. THE CONTRACTOR SHALL IMPLEMENT AND MAINTAIN THE SOIL EROSION CONTROL MEASURES AS SHOWN ON THE PLANS AND AS DIRECTED BY THE ENGINEER AT ALL TIMES DURING CONSTRUCTION. ANY MODIFICATIONS OR ADDITIONS TO THE SOIL EROSION CONTROL MEASURES DUE TO CONSTRUCTION OR CHANGED CONDITIONS SHALL BE AS DIRECTED AND APPROVED BY THE ENGINEER.
2. ALL SOIL EROSION AND SEDIMENTATION CONTROL WORK SHALL CONFORM TO THE PERMIT REQUIREMENTS OF THE CITY OF ANN ARBOR, THE LAWS OF THE STATE OF MICHIGAN, AND THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.
3. DAILY, OR AFTER ANY STORM EVENT, INSPECTIONS OF EROSION CONTROL MEASURES SHALL BE MADE BY THE CONTRACTOR. PERIODIC INSPECTIONS MAY BE MADE BY THE ENGINEER TO DETERMINE THE EFFECTIVENESS OF EROSION AND SEDIMENTATION CONTROL MEASURES. ANY NECESSARY CORRECTIONS SHALL BE MADE WITHOUT DELAY, AND WITHOUT ADDITIONAL COST TO THE CITY OF ANN ARBOR.
4. EROSION AND SEDIMENTATION FROM WORK ON THE SITE SHALL BE CONTAINED ON THE SITE AND NOT BE ALLOWED TO COLLECT ON ANY OFF-SITE AREAS, ROADWAYS OR WATERWAYS.
5. ALL MUD/SOIL TRACKED ONTO ROADWAYS FROM THE SITE DUE TO CONSTRUCTION, SHALL BE PROMPTLY REMOVED BY THE CONTRACTOR. IF SO ORDERED, THE CONTRACTOR SHALL PROVIDE AND OPERATE A VACUUM-TYPE STREET SWEEPER, AT NO ADDITIONAL COST TO THE CITY OF ANN ARBOR.
6. RESTORATION OF ALL DISTURBED AREAS, INCLUDING PLACEMENT OF TOPSOIL, SEED, FERTILIZER AND MULCH AND/OR SOD SHALL BE PERFORMED WITHIN FIVE (5) DAYS OF THE COMPLETION OF FINAL GRADE.
7. CONSTRUCTION OPERATIONS SHALL BE SCHEDULED AND PERFORMED SO THAT PREVENTATIVE SOIL EROSION CONTROL MEASURES ARE IN PLACE PRIOR TO EXCAVATION IN CRITICAL AREAS AND TEMPORARY STABILIZATION MEASURES ARE IN PLACE IMMEDIATELY FOLLOWING BACKFILLING OPERATIONS.
8. SPECIAL PRECAUTIONS WILL BE TAKEN IN THE USE OF CONSTRUCTION EQUIPMENT TO PREVENT SITUATIONS THAT PROMOTE EROSION.
9. PROPER DUST CONTROL SHALL BE MAINTAINED DURING CONSTRUCTION BY USE OF

- WATER TRUCKS AND/OR OTHER METHODS APPROVED BY THE ENGINEER.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL TEMPORARY SOIL EROSION CONTROL MEASURES AND REMOVAL OF SOME MEASURES UPON AUTHORIZED COMPLETION OF THE PROJECT. FINAL COMPLETION OF PROJECT WILL NOT BE AUTHORIZED UNTIL ALL SITE WORK AND UTILITY CONSTRUCTION IS COMPLETE AND ALL SOILS ARE STABILIZED.
 11. THE CONTRACTOR SHALL NOT GRADE INTO ADJACENT PROPERTIES. SILT AND PROTECTIVE FENCE SHALL BE INSTALLED AND MAINTAINED TO PREVENT GRADING, EROSION AND SEDIMENTATION INTO THE ADJACENT PROPERTIES.
 12. TREE PROTECTION FENCING MUST REMAIN INTACT UNTIL RESTORATION OF THE SITE IS COMPLETE.

SEQUENCE OF EROSION CONTROL MEASURES:

1. THE CONTRACTOR IS TO SUBMIT TO THE ENGINEER, A SEQUENCE OF CONSTRUCTION WITH RESPECT TO THE SOIL EROSION CONTROL MEASURES FOR REVIEW, COMMENT AND APPROVAL. THIS SCHEDULE IS TO INCLUDE INSPECTION AND REPAIR OF ALL TEMPORARY EROSION CONTROL MEASURES DAILY AND WITHIN 24 HOURS OF A STORM EVENT.

SAMPLE SOIL EROSION AND SEDIMENTATION CONTROL INSTALLATION MINIMUM REQUIREMENTS:

- 1.1. INSTALL SILT FENCE, TREE PROTECTION FENCING, MUD MATS, INLET FILTERS ON EXISTING DRAINAGE FEATURES, AND ALL OTHER TEMPORARY SOIL EROSION CONTROLS, PRIOR TO ANY CLEARING OR EARTH MOVING OPERATION.
- 1.2. STRIP AND STOCKPILE TOPSOIL. STABILIZE STOCKPILE AS REQUIRED.
- 1.3. INSTALL WATER MAINS, STORM AND SANITARY SEWERS, AND OTHER ENCLOSED DRAINAGE FEATURES. NEW INLET FILTERS SHALL BE INSTALLED IMMEDIATELY FOLLOWING INSTALLATION OF NEW DRAINAGE INLETS.
- 1.4. PERFORM MACHINE GRADING OPERATIONS AND CONSTRUCT PAVEMENTS (MAINLINE, SIDEWALKS, DRIVES, ETC.).
- 1.5. CONTINUALLY MAINTAIN EROSION AND SEDIMENTATION CONTROL MEASURES, AS REQUIRED TO ALLOW DRAINAGE AND SEDIMENT REMOVAL. REMOVE ANY ACCUMULATED SEDIMENT IMMEDIATELY.
- 1.6. COMPLETE ALL FINE GRADING.

- 1.7. TEMPORARY SEED AND INSTALL EROSION CONTROL BLANKET IN ALL DISTURBED AREAS.
- 1.8. REFER TO LANDSCAPE PLANTING PLANS FOR PERMANENT SITE STABILIZATION.
- 1.9. CLEAN OUT STORM SEWER SYSTEMS.
- 1.10. REMEDY ANY NOTED DEFECTS TO THE SATISFACTION OF THE CITY OF ANN ARBOR'S SOIL EROSION AND SEDIMENTATION CONTROL OFFICIAL.
- 1.11. ALL TEMP. SOIL EROSION CONTROL MEASURES MUST BE REMOVED, WITH ENGINEERS APPROVAL, PRIOR TO FINAL INSPECTION

NOTE: THIS SEQUENCE IS FOR INFORMATION ONLY. IT IS INTENDED TO SHOW THE SEQUENCE OF CONSTRUCTION WITH RESPECT TO THE SOIL EROSION AND SEDIMENTATION CONTROL MEASURES. THE CONTRACTOR IS RESPONSIBLE FOR SUBMITTING THEIR OWN DETAILED CONSTRUCTION SEQUENCE AND SCHEDULE TO THE ENGINEER FOR REVIEW, COMMENT, AND APPROVAL.

TEMPORARY SEEDING:

1. SEED IN ACCORDANCE WITH PROJECT DRAWINGS AND SPECIFICATIONS.
2. ANY DISTURBED AREA NOT PAVED, SEEDED, MULCHED, SODDED OR BUILT UPON BY NOVEMBER 15TH OR JUNE 30TH IS TO BE TEMPORARILY STABILIZED PER SPECIFICATIONS.

THE ESTIMATED COST OF SOIL EROSION AND SEDIMENTATION CONTROL MEASURES, TOPSOIL, SEEDING, AND MULCH = \$52,200.

ESTIMATE OF EXCAVATION AND FILL FROM EXISTING TO FINAL GRADE:

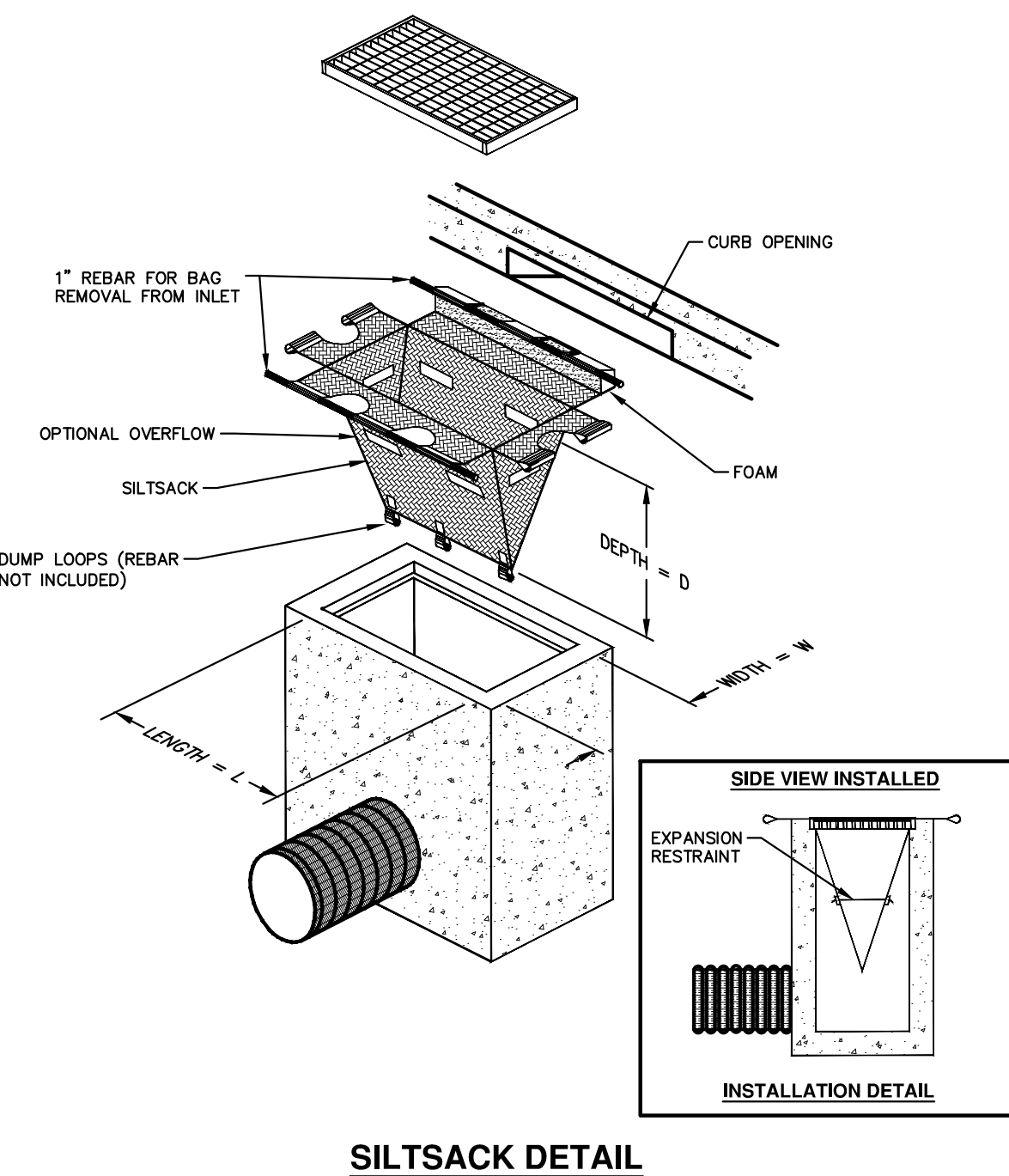
- EXCAVATION = 9,660 CY, FILL = 90 CY

ON SITE SOILS PER THE USDA SOIL SURVEY OF WASHTENAW COUNTY, MICHIGAN:

- BbB - BLOUNT LOAM - 2% TO 6% SLOPES.
- CpA - CONOVER BROOKSTON LOAMS - 0% TO 2% SLOPES
- Pe - PEWAMO CLAY LOAM - 0% TO 2% SLOPES
- S1B - ST. CLAIR CLAY LOAM, 2% TO 6% SLOPES
- W6A - WAWASEE LAOM, 2% TO 6% SLOPES

IMPERVIOUS PROJECT AREA	
PRIOR TO CONSTRUCTION = 6.63 ACRES	POST CONSTRUCTION = 6.62 ACRES

AREA OF PROPOSED DISTURBANCE = 6.97 ACRES



NOTE: THE SILTSACK WILL BE MANUFACTURED FROM A WOVEN POLYPROPYLENE FABRIC THAT MEETS OR EXCEEDS THE FOLLOWING SPECIFICATIONS.

REGULAR FLOW SILTSACK

(FOR AREAS OF LOW TO MODERATE PRECIPITATION AND RUN-OFF)

PROPERTIES	REQUIRED VALUE	TEST METHOD
GRAB TENSILE STRENGTH	ASTM D-4632	300 LBS
GRAB TENSILE ELONGATION	ASTM D-4632	20%
PUNCTURE	ASTM D-4833	120 LBS
MULLEN BURST	ASTM D-3786	800 PSI
TRAPEZOID TEAR	ASTM D-4533	120 LBS
UV RESISTANCE	ASTM D-4355	80%
APPARENT OPENING SIZE	ASTM D-4751	40 US SIEVE
FLOW RATE	ASTM D-4491	40 GAL/MIN/SQ FT
PERMITTIVITY	ASTM D-4491	0.55 SEC-1

HI-FLOW SILTSACK

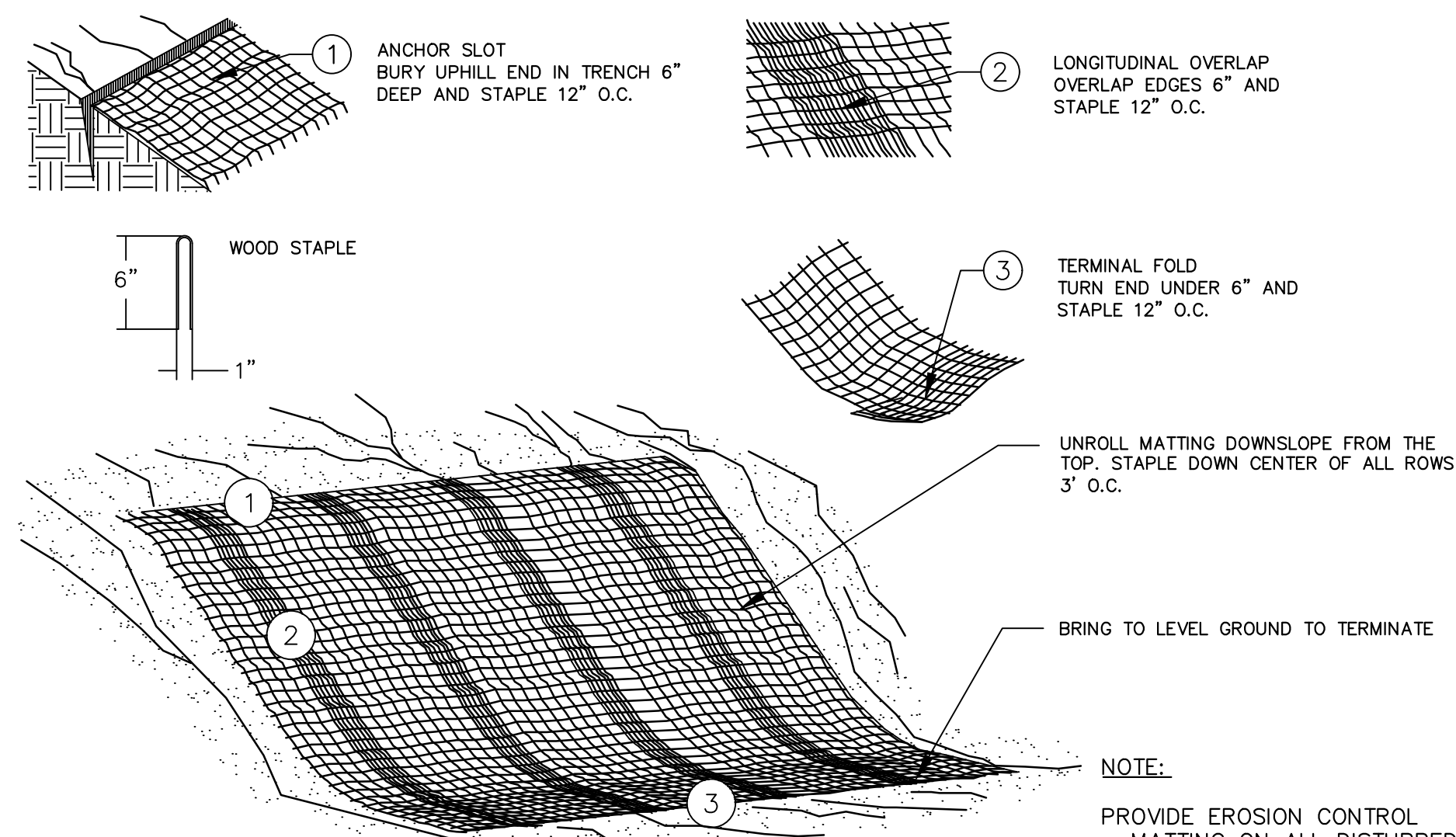
(FOR AREAS OF MODERATE TO HEAVY PRECIPITATION AND RUN-OFF)

PROPERTIES	REQUIRED VALUE	TEST METHOD
GRAB TENSILE STRENGTH	ASTM D-4632	265 LBS
GRAB TENSILE ELONGATION	ASTM D-4632	20%
PUNCTURE	ASTM D-4833	135 LBS
MULLEN BURST	ASTM D-3786	420 PSI
TRAPEZOID TEAR	ASTM D-4533	45 LBS
UV RESISTANCE	ASTM D-4355	90%
APPARENT OPENING SIZE	ASTM D-4751	20 US SIEVE
FLOW RATE	ASTM D-4491	200 GAL/MIN/SQ FT
PERMITTIVITY	ASTM D-4491	1.5 SEC-1

OIL-ABSORBANT SILTSACK

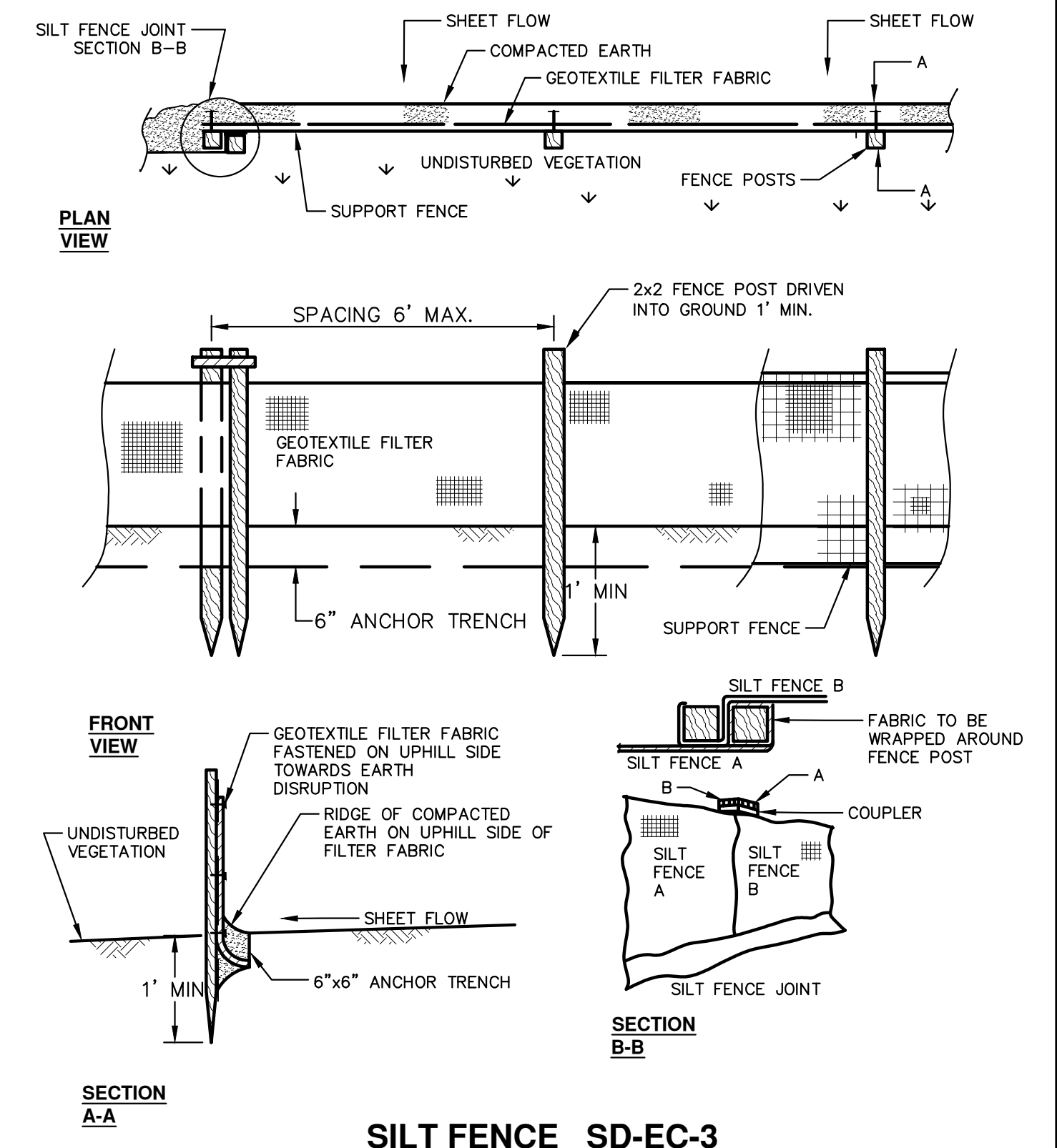
(FOR AREAS WHERE THERE IS A CONCERN FOR OIL RUN-OFF OR SPILLS)

IT IS THE INTENT OF THE PLANS AND SPECIFICATIONS THAT THE CONTRACTOR INSTALL THE REBAR AS SHOWN IN THIS DETAIL TO PROVIDE A FULLY FUNCTIONING UNIT. ALL COSTS ASSOCIATED WITH FURNISHING, CLEANING AS MANY TIMES AS REQUIRED, DISPOSAL OF SEDIMENT, AND REMOVING THE INLET FILTER WHEN NO LONGER NEEDED IS INCLUDED IN THE ITEM OF WORK AND WILL NOT BE PAID FOR SEPARATELY.

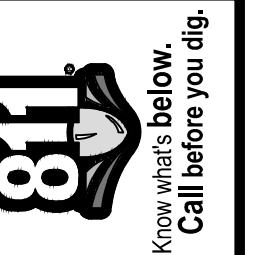


MULCH BLANKET DETAIL

APPLIES TO ALL AREAS TO BE PERMANENTLY RESTORED WITH GRASS. SEE LANDSCAPE PLANS FOR MORE DETAILS.

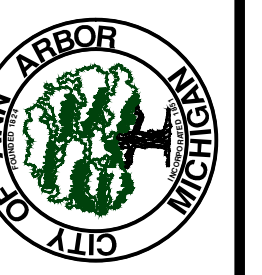


SILT FENCE SD-EC-3



NO.	DATE	DESCRIPTION	REV.
1	3/14/2023	ADDDENDUM NO. 1	
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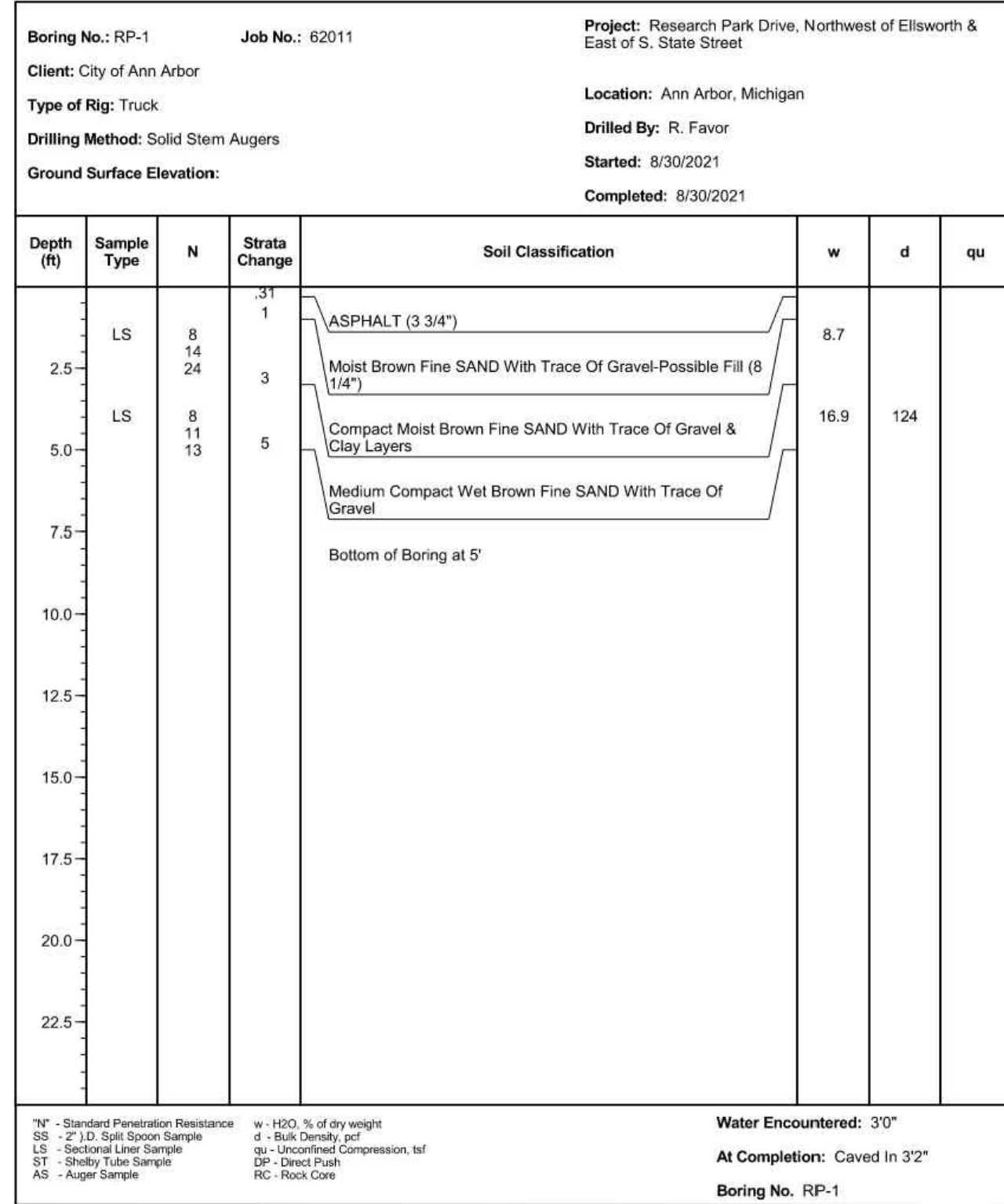


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 SOIL EROSION AND SEDIMENTATION CONTROL NOTES AND DETAILS
 SCALE: NTS
 DRAWING No. 2022-035-14
 SHEET No.

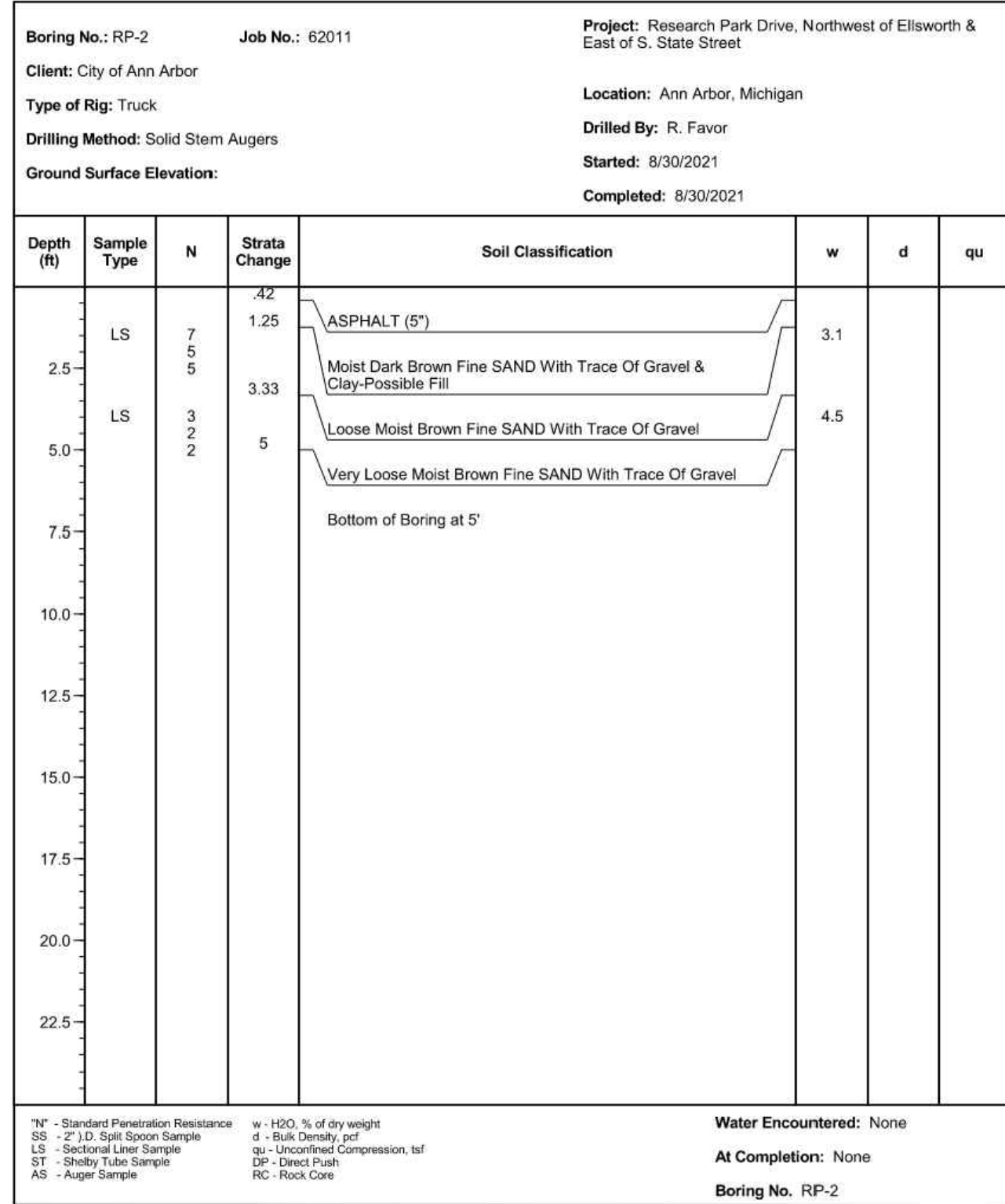
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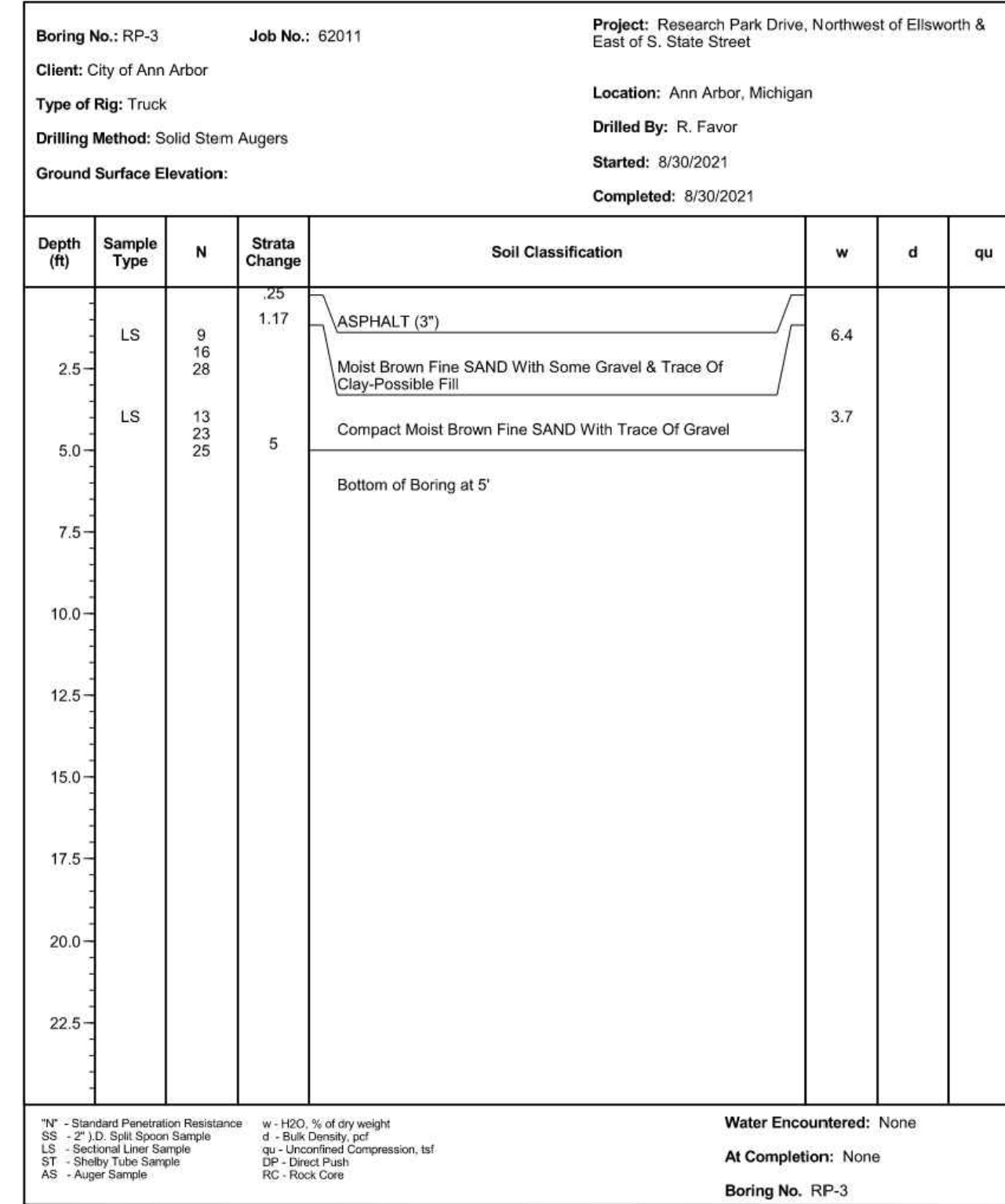
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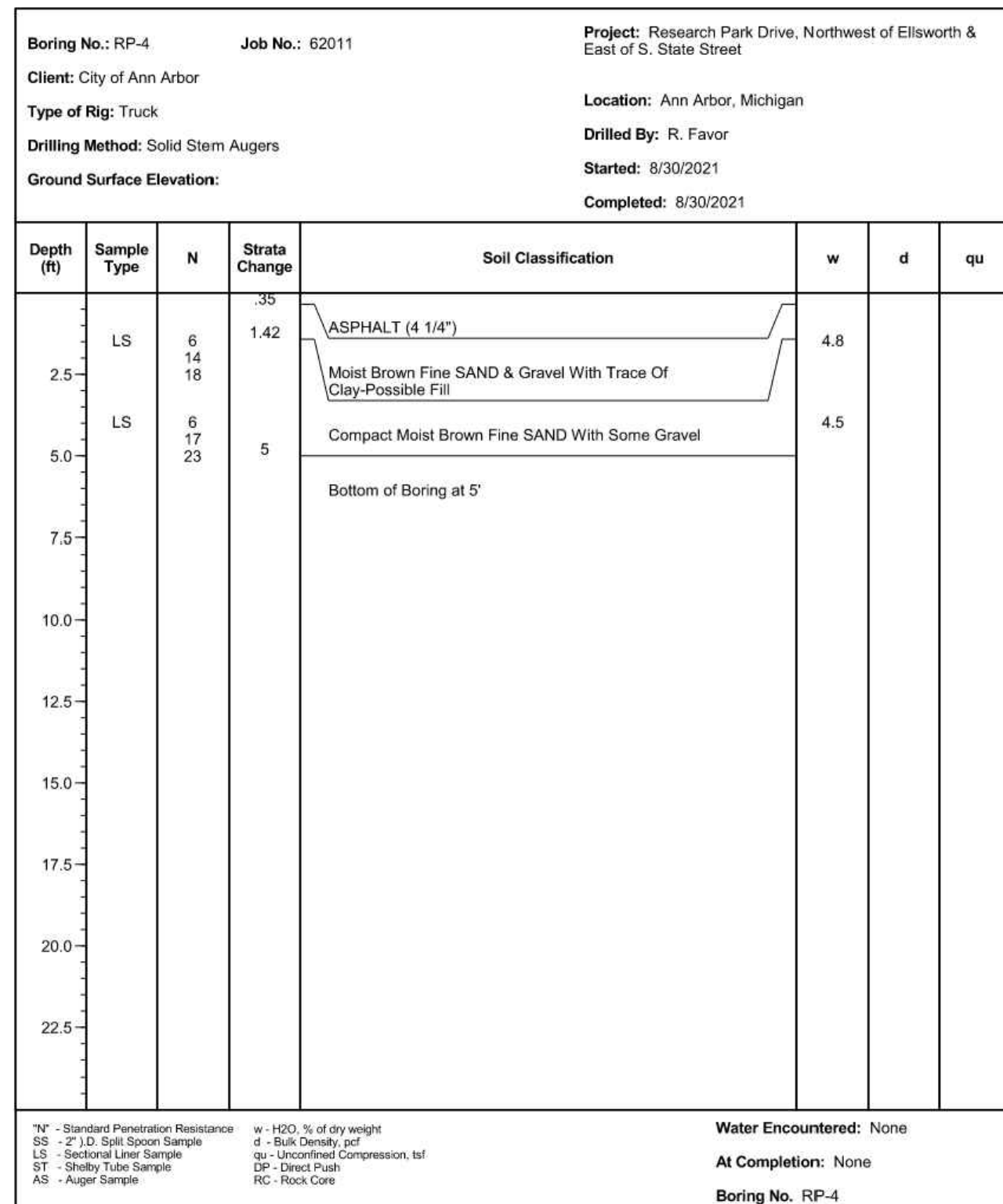
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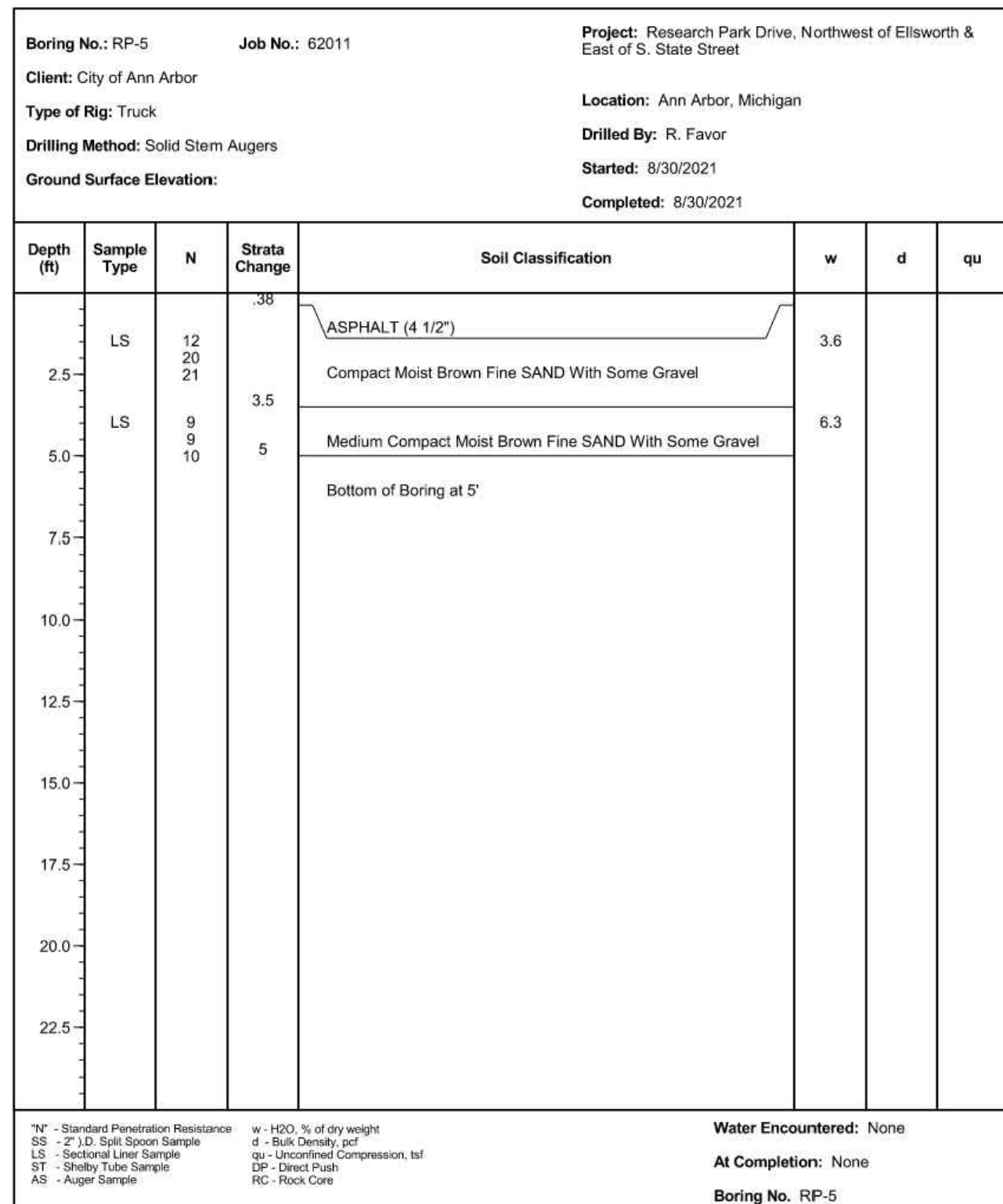
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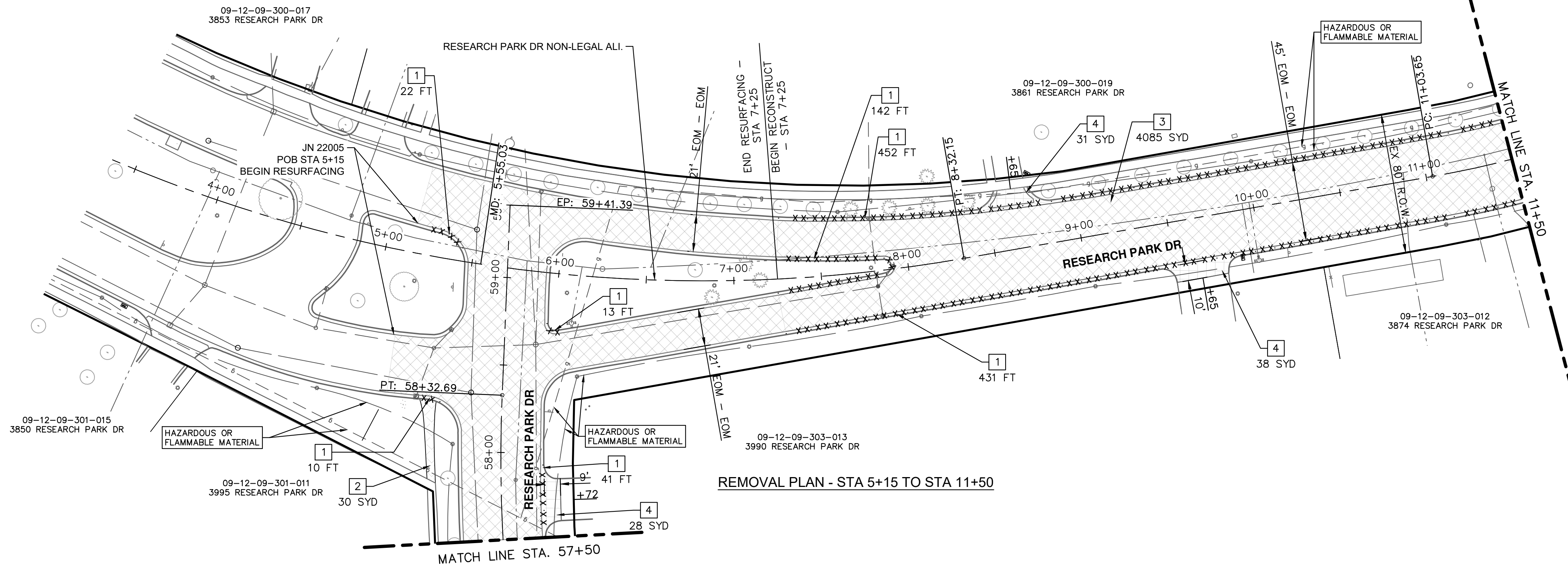
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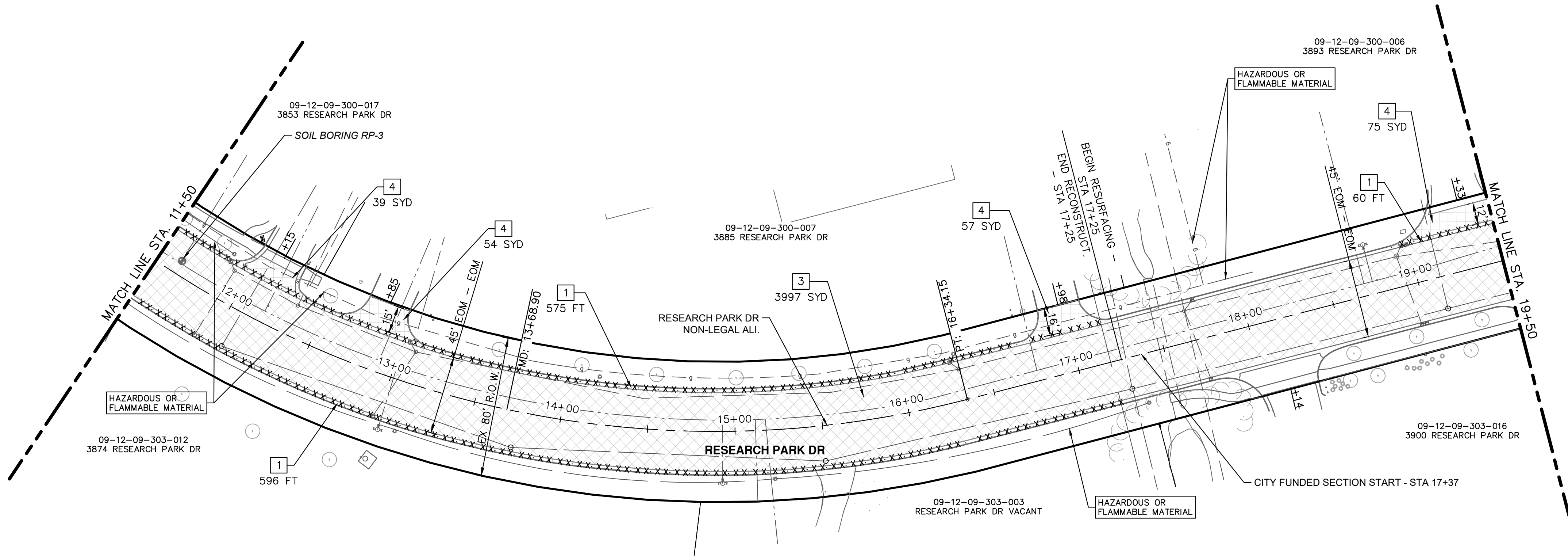
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IMPROVEMENTS PROJECT
PAVEMENT CORES LOGS

SCALE: NTS
DRAWING No. 2022-035-15

J:\AA\Design\AA22005-Research Park Drive\DWG\AA22005_Rem1.dwg Dwg Created: 21-Dec-22 - _a2_standard_bw.stb - Plot Date: 14-Mar-23



REMOVAL PLAN - STA 5+15 TO STA 11+50




REMOVAL PLAN - STA 11+50 TO STA 19+50

REMOVAL HATCH KEY

	HMA SURFACE, REM
	DRIVEWAY, REM
	SIDEWALK, REM
	CURB AND GUTTER, REM

REMOVAL KEY

KEY	DESCRIPTION
1	CURB AND GUTTER, REM
2	SIDEWALK, REM
3	HMA SURFACE, REM
4	DRIVEWAY, REM



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REMOVALS - POB TO STA 19+50

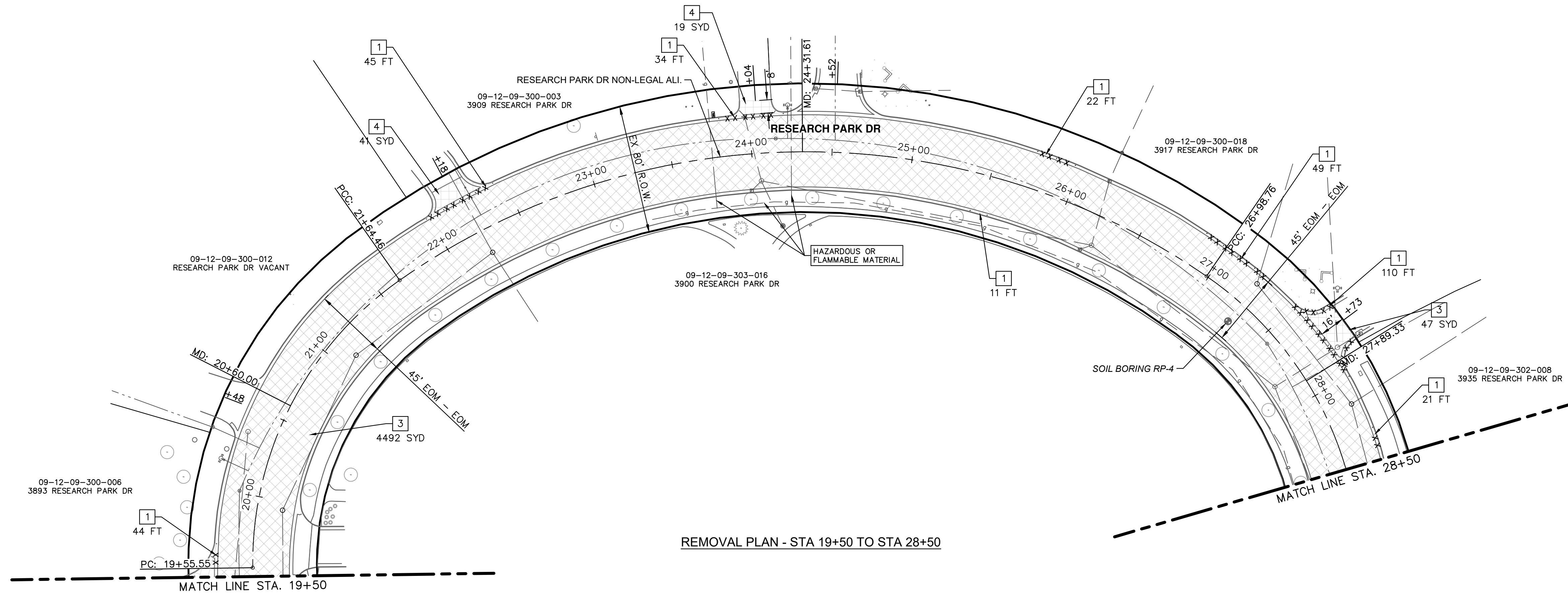
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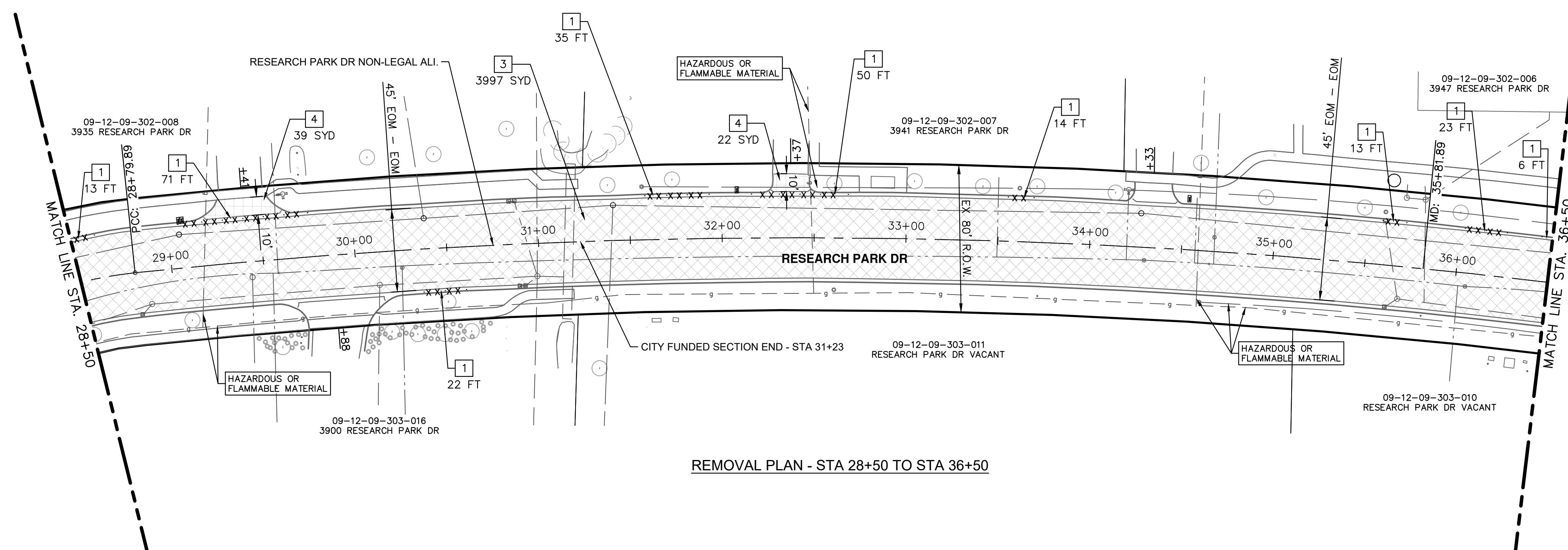
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SCALE: 1" = 40'
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 SHEET No.

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REMOVAL PLAN - STA 19+50 TO STA 28+50



REMOVAL PLAN - STA 28+50 TO STA 36+50

REMOVAL HATCH KEY

	HMA SURFACE, REM
	DRIVEWAY, REM
	CURB AND GUTTER, REM

REMOVAL KEY

KEY	DESCRIPTION
1	CURB AND GUTTER, REM
2	SIDEWALK, REM
3	HMA SURFACE, REM
4	DRIVEWAY, REM

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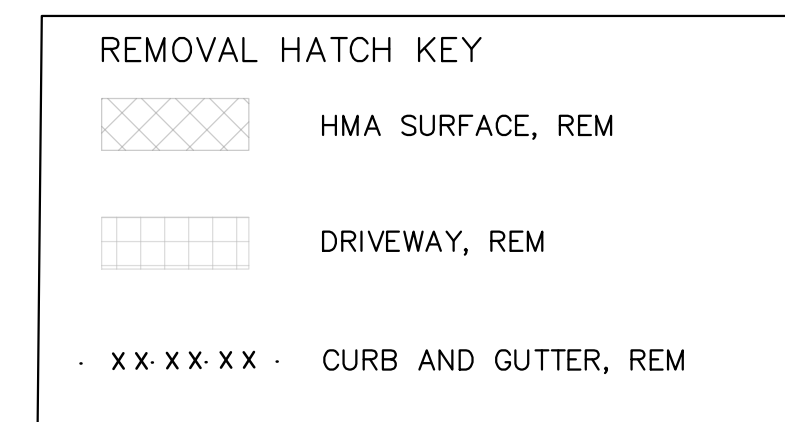
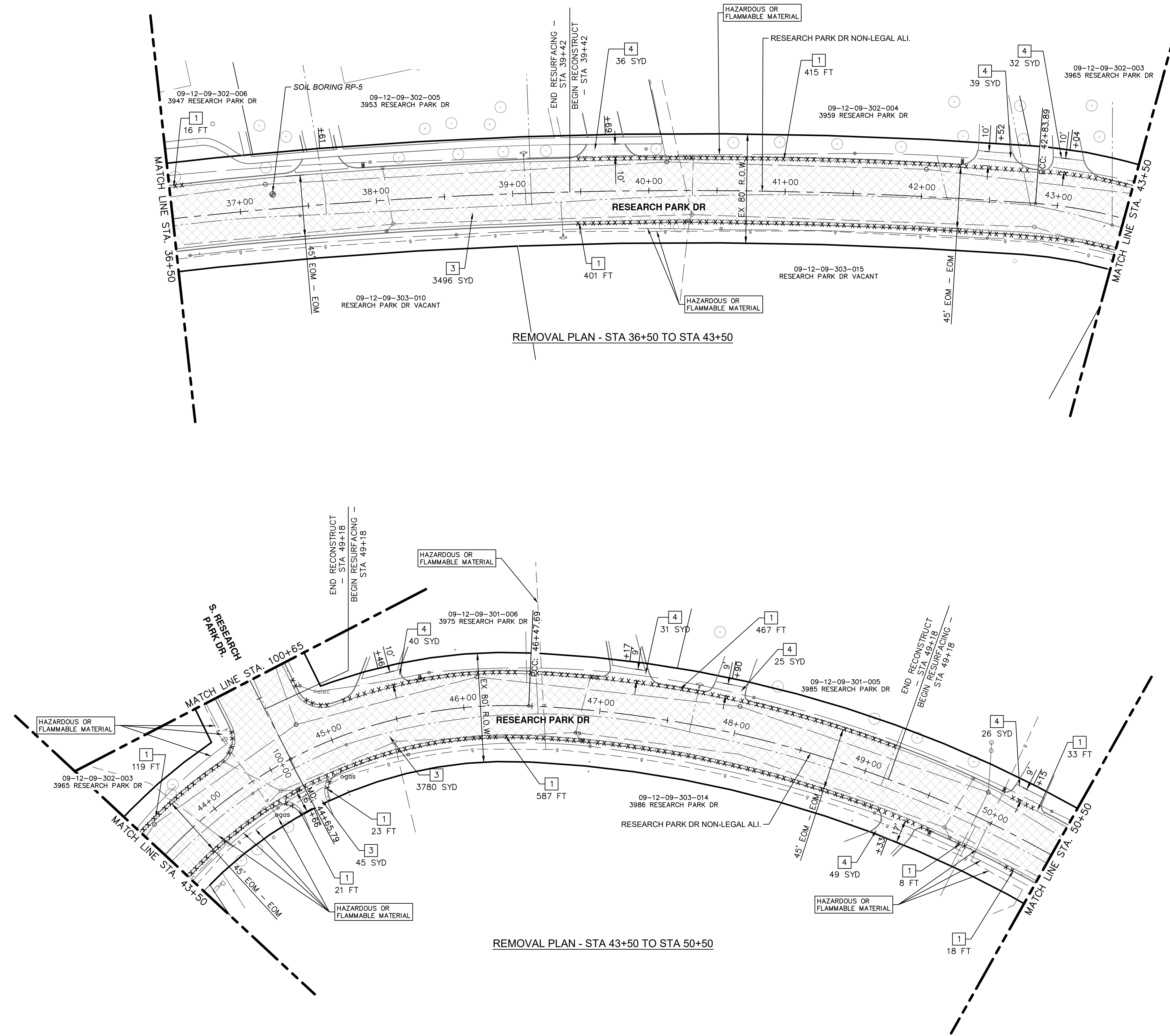
REMOVALS - STA 19+50 TO STA 36+50

SCALE: 1" = 40'

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SHEET No. 17 OF 41

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REMOVAL KEY

KEY	DESCRIPTION
1	CURB AND GUTTER, REM
2	SIDEWALK, REM
3	HMA SURFACE, REM
4	DRIVEWAY, REM

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 IMPROVEMENTS PROJECT
 REMOVALS - STA 36+50 TO STA 50+50

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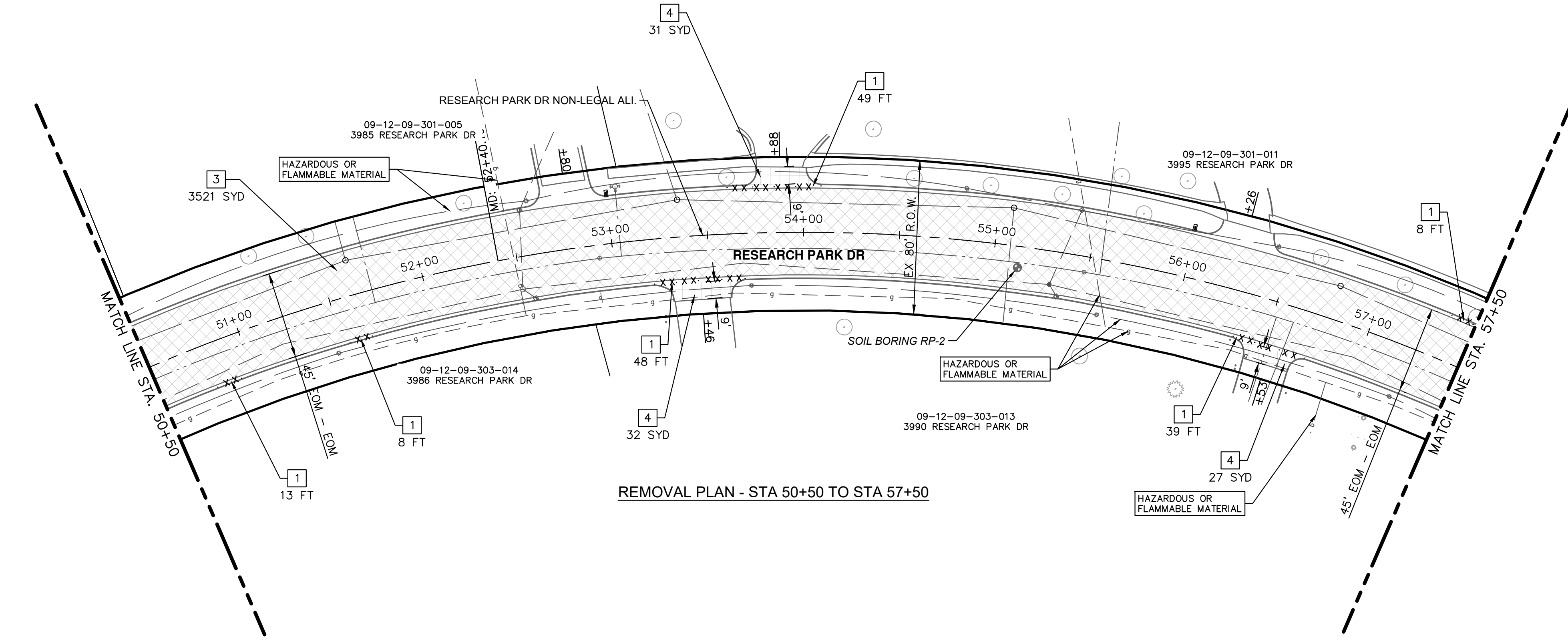
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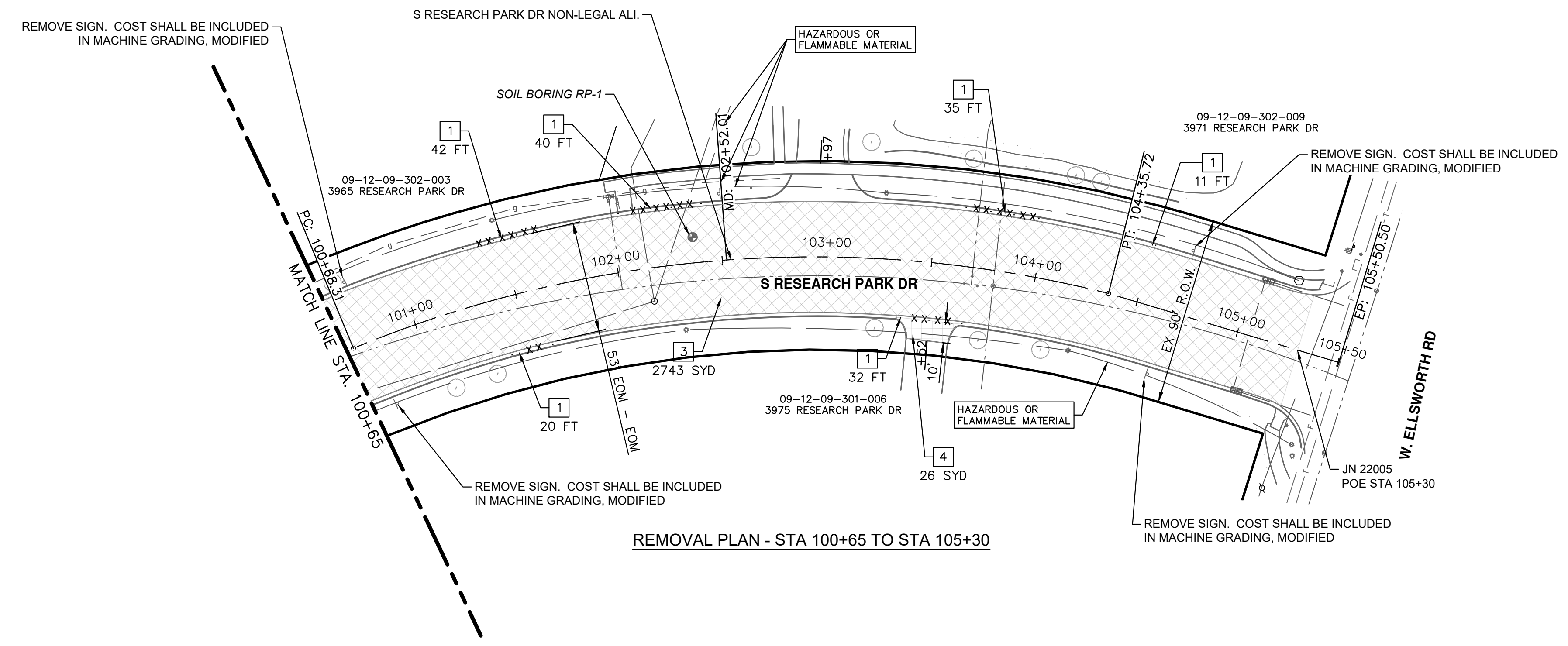
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REMOVAL PLAN - STA 50+50 TO STA 57+50



REMOVAL PLAN - STA 100+65 TO STA 105+30

REMOVAL HATCH KEY

	HMA SURFACE, REM
	DRIVEWAY, REM
	CURB AND GUTTER, REM

REMOVAL KEY

KEY	DESCRIPTION
1	CURB AND GUTTER, REM
2	SIDEWALK, REM
3	HMA SURFACE, REM
4	DRIVEWAY, REM



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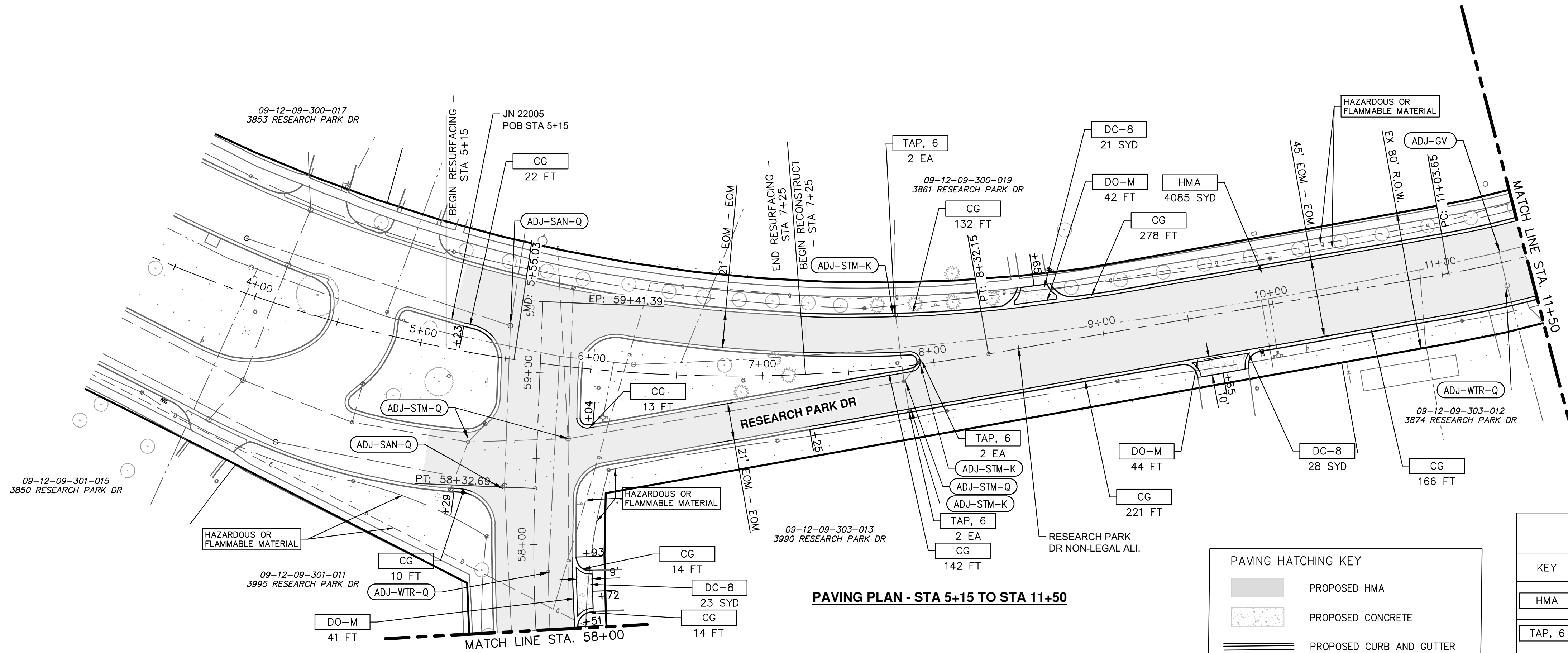
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REMOVALS - STA 50+50 TO POE

SCALE: 1" = 40'
DRAWING No. 2022-035-19

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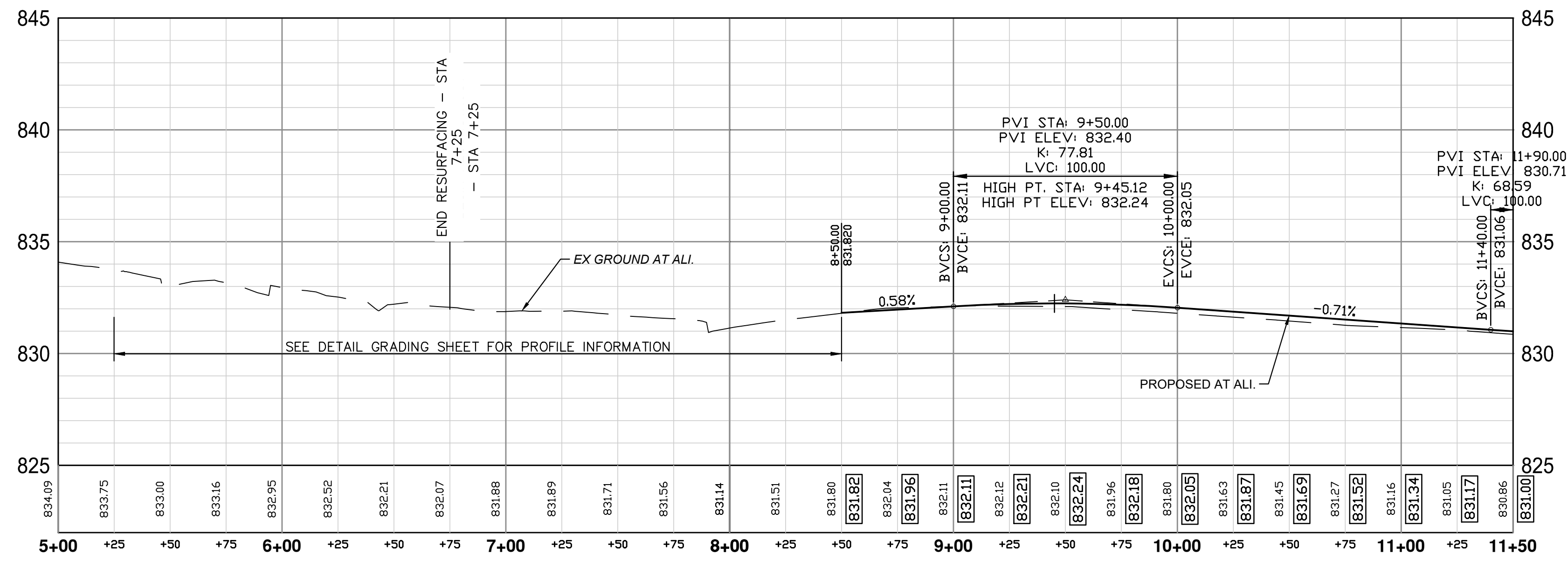
PAVING PLAN - STA 5+15 TO STA 11+50

PAVING HATCHING KEY

	PROPOSED HMA
	PROPOSED CONCRETE
	PROPOSED CURB AND GUTTER

CONSTRUCTION KEY

KEY	DESCRIPTION
HMA	PLACE HMA, EL. PLACE MATERIAL IN LIFTS ACCORDING TO THE TYPICAL SECTION AND AS DIRECTED BY THE ENGINEER
TAP, 6	CORE DRAINAGE STRUCTURE TAP, 6 INCH
CG	PLACE CURB AND GUTTER, CONC, BARRIER
DO-M	PLACE DRIVEWAY OPENING, CONC, DET M
DC-8	PLACE DRIVEWAY, NONREINF CONC, 8 INCH, PLACE AND COMPACT 6 INCH SUBBASE, CIP.
ABO	ADJUST BY OTHERS
ADJ-XXX	ADJUST GATE VALVE BOX, MONUMENT BOX, OR GAS BOX.
ADJ-SXX	ADJUST STRUCTURE COVER



811
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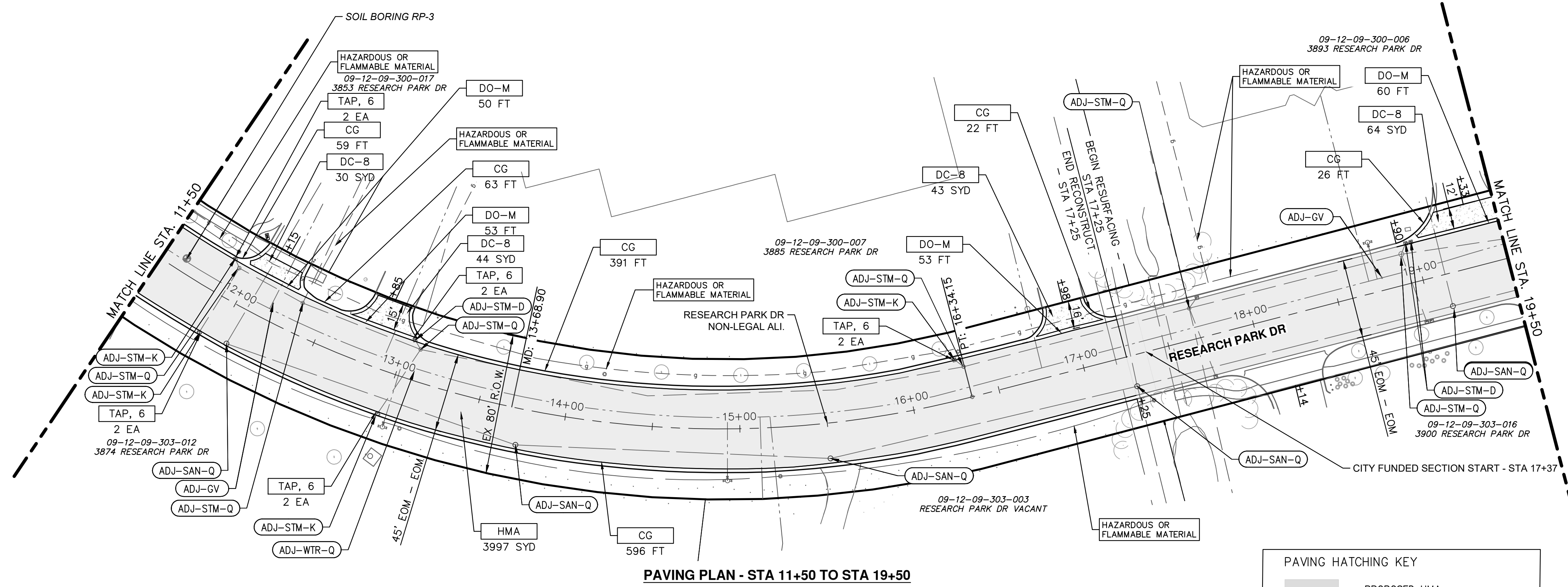
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1	ADDENDUM NO. 1	3/14/2023	JAB	DAD

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 ROAD PLAN AND PROFILE - POB TO STA 11+50

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SCALE PLAN: 1" = 40' PROFILE: 1" = 40' HORIZ
 1" = 5' VERT

DRAWING NO. **2022-035-20**
 SHEET NO. **20 OF 41**



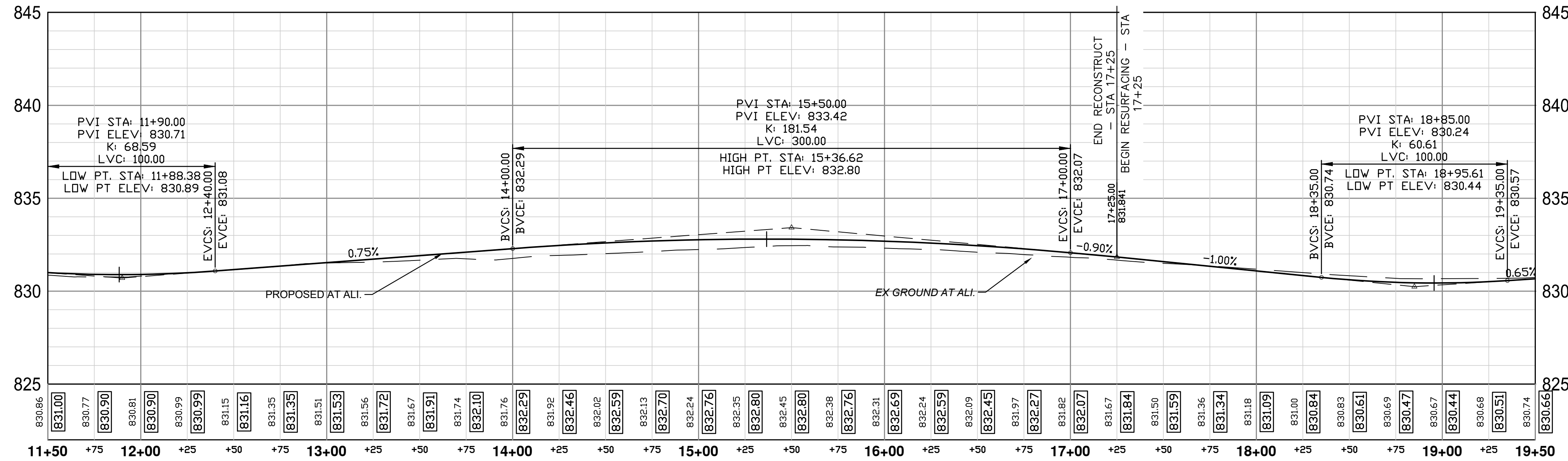
PAVING PLAN - STA 11+50 TO STA 19+50

PAVING HATCHING KEY

	PROPOSED HMA
	PROPOSED CONCRETE
	PROPOSED CURB AND GUTTER

CONSTRUCTION KEY

KEY	DESCRIPTION
HMA	PLACE HMA, EL. PLACE MATERIAL IN LIFTS ACCORDING TO THE TYPICAL SECTION AND AS DIRECTED BY THE ENGINEER
TAP, 6	CORE DRAINAGE STRUCTURE TAP, 6 INCH
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DO-M	PLACE DRIVEWAY OPENING, CONC, DET M
DC-8	PLACE DRIVEWAY, NONREINF CONC, 8 INCH, PLACE AND COMPACT 6 INCH SUBBASE, CIP
ABO	ADJUST BY OTHERS
ADJ-XXX	ADJUST GATE VALVE BOX, MONUMENT BOX, OR GAS BOX.
ADJ-SXX	ADJUST STRUCTURE COVER



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3/14/2023
DATE

ADJ-XXX
DESCRIPTION

1
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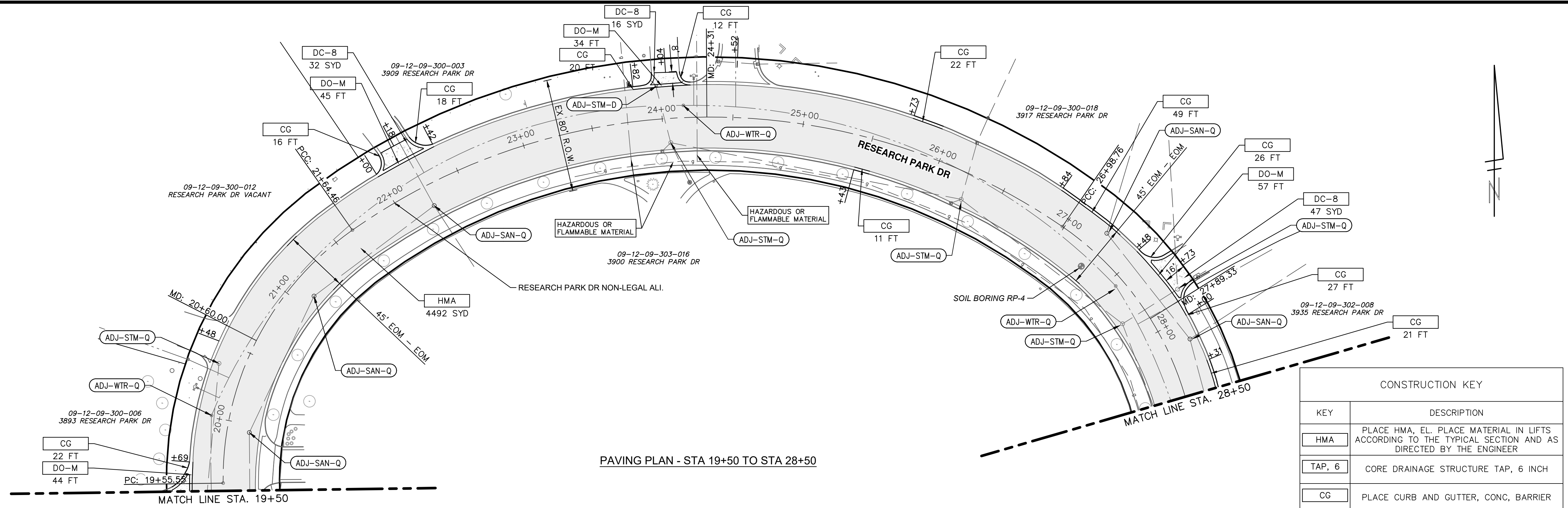
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ROAD PLAN AND PROFILE - STA 11+50 TO STA 19+50

SCALE PLAN: 1" = 40' HORIZ
1" = 5' VERT

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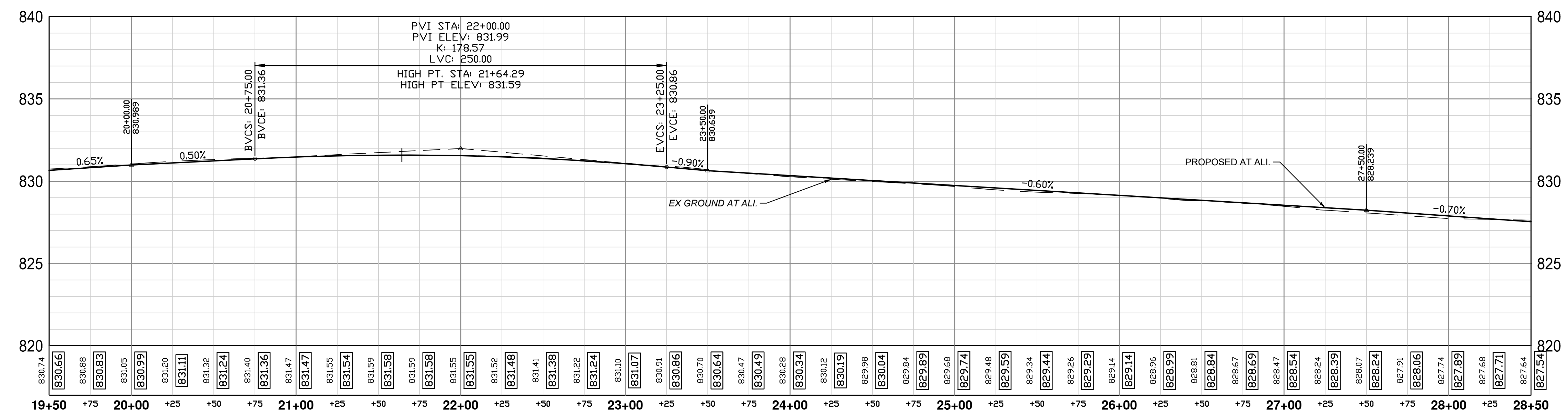
SHEET No. 21 OF 41



PAVING PLAN - STA 19+50 TO STA 28+50

CONSTRUCTION KEY	
KEY	DESCRIPTION
HMA	PLACE HMA, EL. PLACE MATERIAL IN LIFTS ACCORDING TO THE TYPICAL SECTION AND AS DIRECTED BY THE ENGINEER
TAP, 6	CORE DRAINAGE STRUCTURE TAP, 6 INCH
CG	PLACE CURB AND GUTTER, CONC, BARRIER
DO-M	PLACE DRIVEWAY OPENING, CONC, DET M
DC-8	PLACE DRIVEWAY, NONREINF CONC, 8 INCH, PLACE AND COMPACT 6 INCH SUBBASE, CIP
ABO	ADJUST BY OTHERS
ADJ-XXX	ADJUST GATE VALVE BOX, MONUMENT BOX, OR GAS BOX.
ADJ-SXX	ADJUST STRUCTURE COVER

PAVING HATCHING KEY	
	PROPOSED HMA
	PROPOSED CONCRETE
	PROPOSED CURB AND GUTTER



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REV.	NO.	DATE	DESCRIPTION
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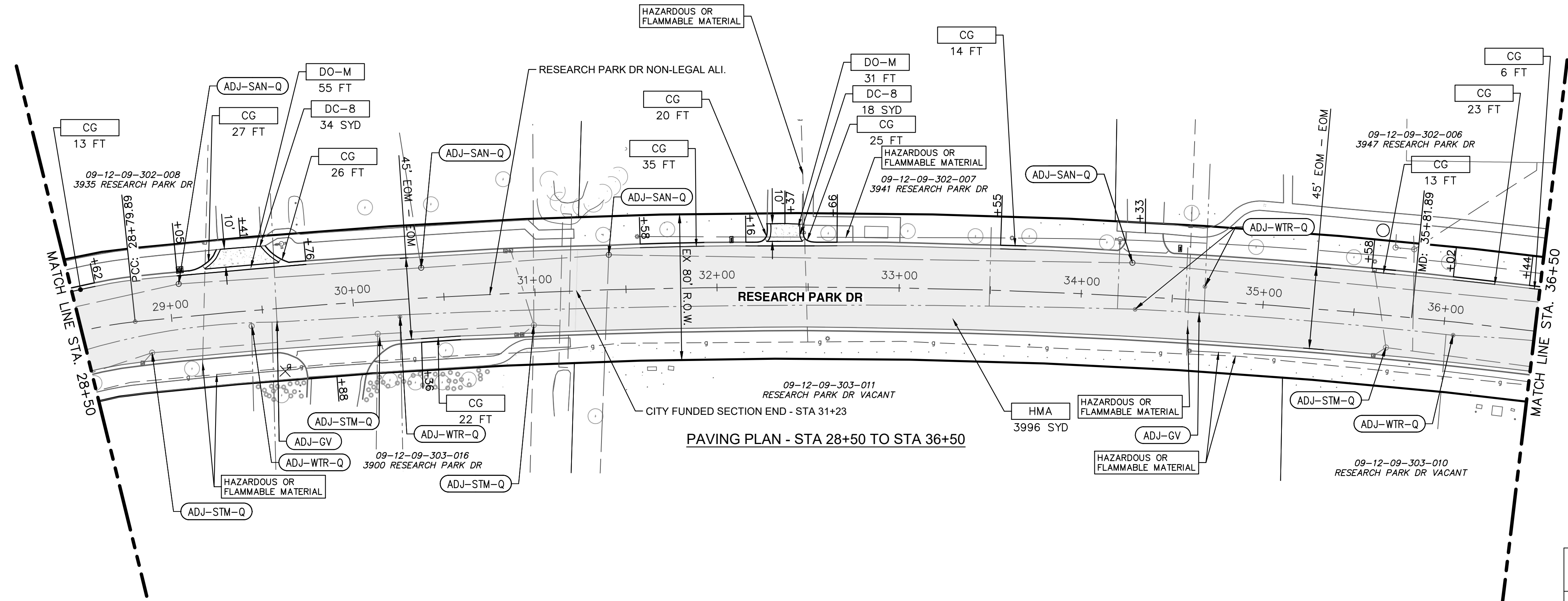
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ROAD PLAN AND PROFILE - STA 19+50 TO STA 28+50

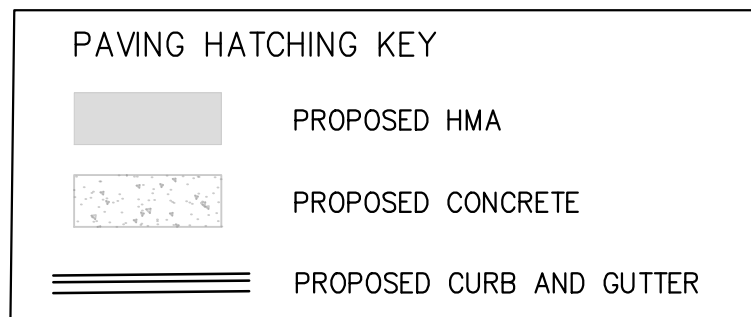
SCALE PLAN: 1" = 40' PROFILE: 1" = 5' VERT

DRAWING No. 2022-035-22

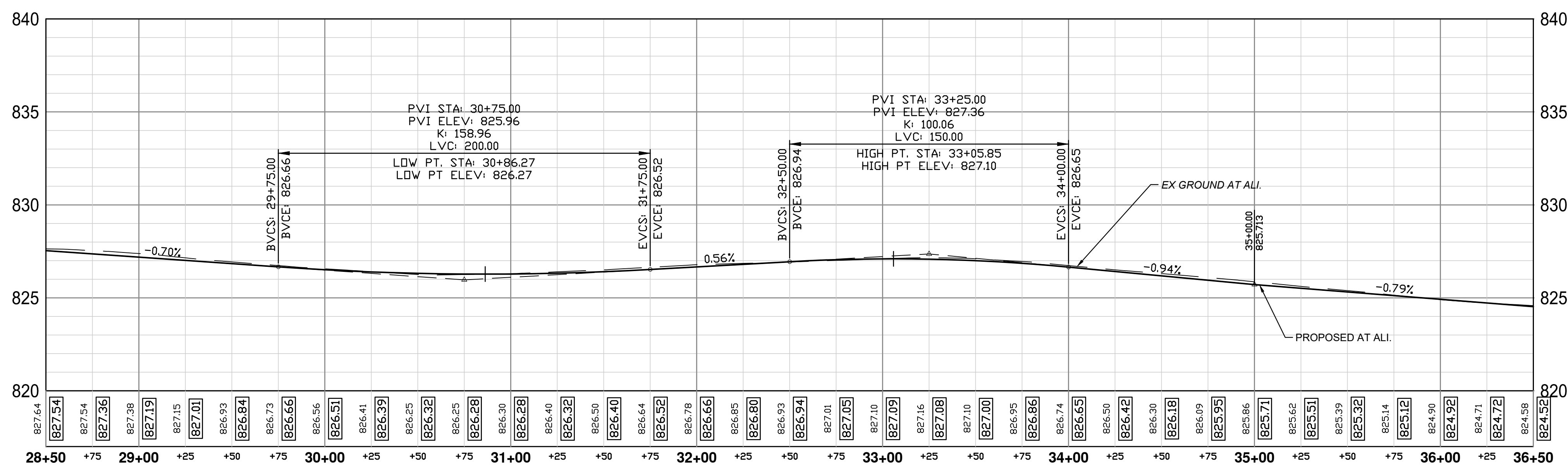
SHEET No. 22 OF 41



PAVING PLAN - STA 28+50 TO STA 36+50



CONSTRUCTION KEY	
KEY	DESCRIPTION
HMA	PLACE HMA, EL. PLACE MATERIAL IN LIFTS ACCORDING TO THE TYPICAL SECTION AND AS DIRECTED BY THE ENGINEER
TAP, 6	CORE DRAINAGE STRUCTURE TAP, 6 INCH
CG	PLACE CURB AND GUTTER, CONC, BARRIER
DO-M	PLACE DRIVEWAY OPENING, CONC, DET M
DC-8	PLACE DRIVEWAY, NONREINF CONC, 8 INCH, PLACE AND COMPACT 6 INCH SUBBASE, CIP
ABO	ADJUST BY OTHERS
ADJ-XXX	ADJUST GATE VALVE BOX, MONUMENT BOX, OR GAS BOX.
ADJ-SXX	ADJUST STRUCTURE COVER



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1	ADDENDUM NO. 1	3/14/2023	JAB	DAD

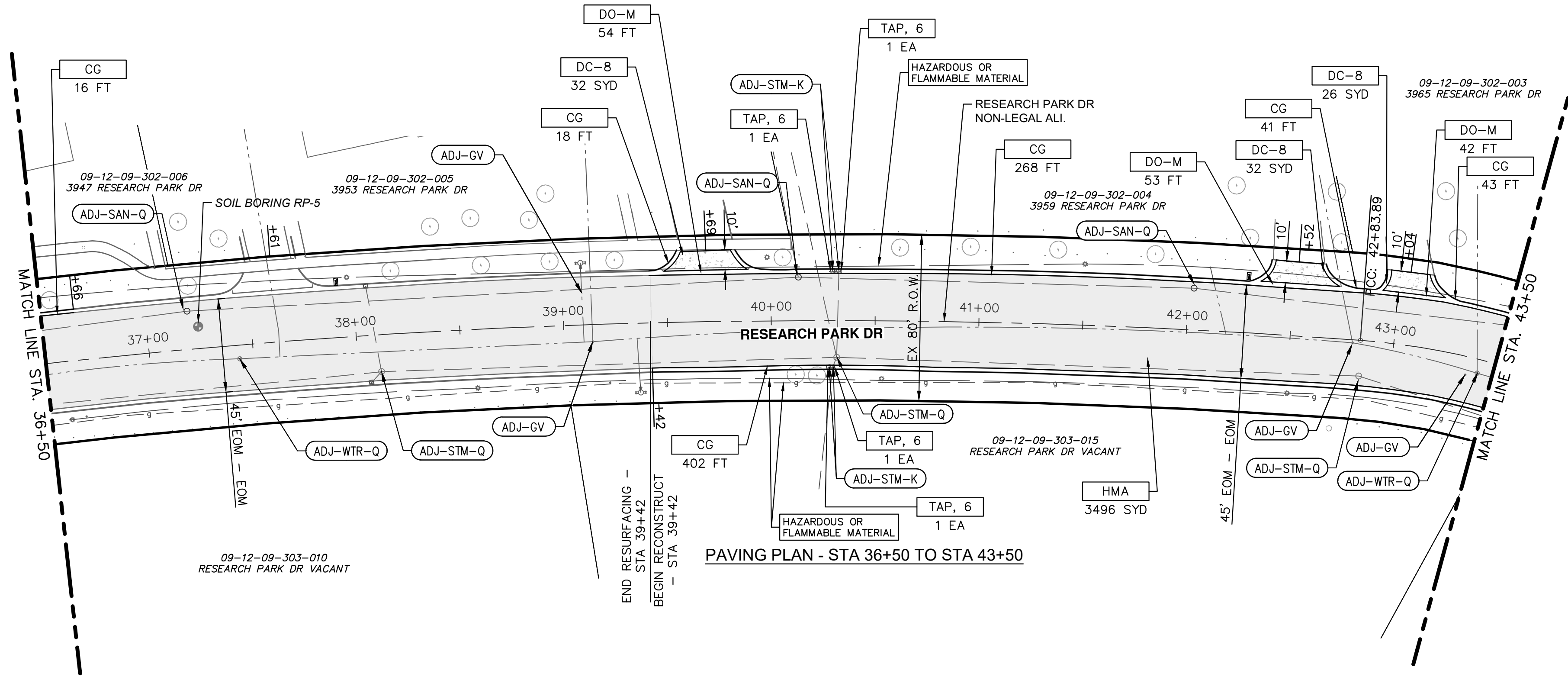
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ROAD PLAN AND PROFILE - STA 28+50 TO STA 36+50

DRAWING No. 2022-035-23

SCALE PLAN: 1" = 40' PROFILE: 1" = 40' HORIZ
1" = 5' VERT

SHEET No. 23 OF 41



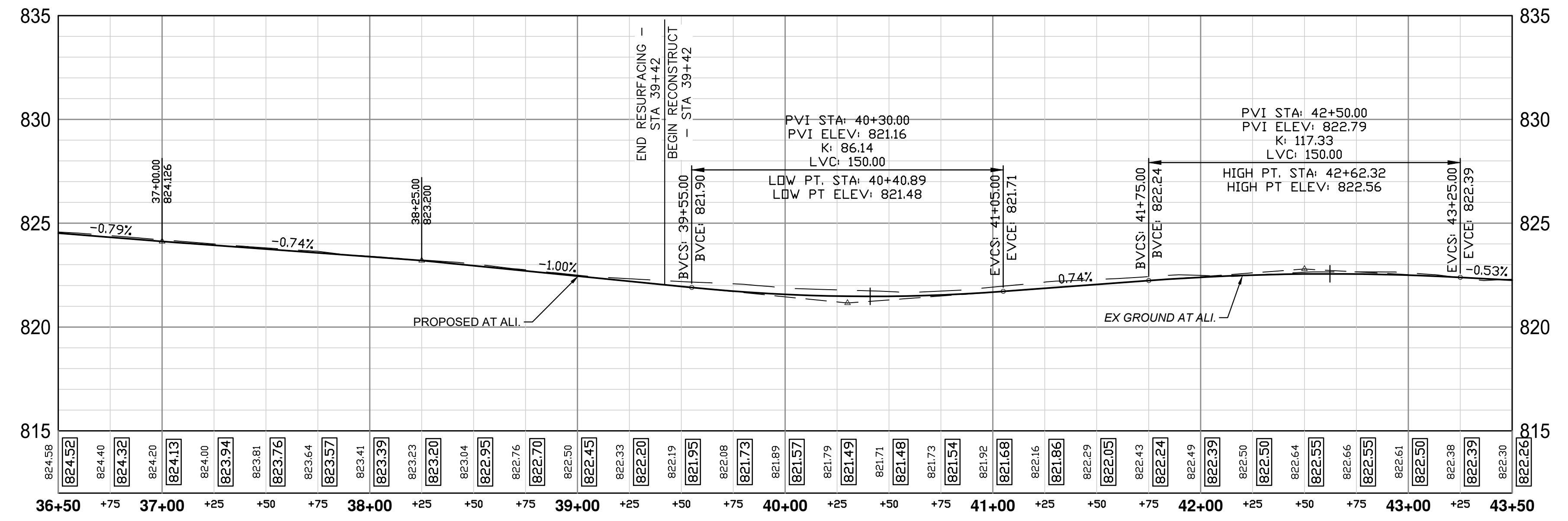
PAVING PLAN - STA 36+50 TO STA 43+50

PAVING HATCHING KEY

	PROPOSED HMA
	PROPOSED CONCRETE
	PROPOSED CURB AND GUTTER

CONSTRUCTION KEY

KEY	DESCRIPTION
HMA	PLACE HMA, EL. PLACE MATERIAL IN LIFTS ACCORDING TO THE TYPICAL SECTION AND AS DIRECTED BY THE ENGINEER
TAP, 6	CORE DRAINAGE STRUCTURE TAP, 6 INCH
CG	PLACE CURB AND GUTTER, CONC, BARRIER
DO-M	PLACE DRIVEWAY OPENING, CONC, DET M
DC-8	PLACE DRIVEWAY, NONREINF CONC, 8 INCH, PLACE AND COMPACT 6 INCH SUBBASE, CIP
ABO	ADJUST BY OTHERS
ADJ-XXX	ADJUST GATE VALVE BOX, MONUMENT BOX, OR GAS BOX.
ADJ-SXX	ADJUST STRUCTURE COVER



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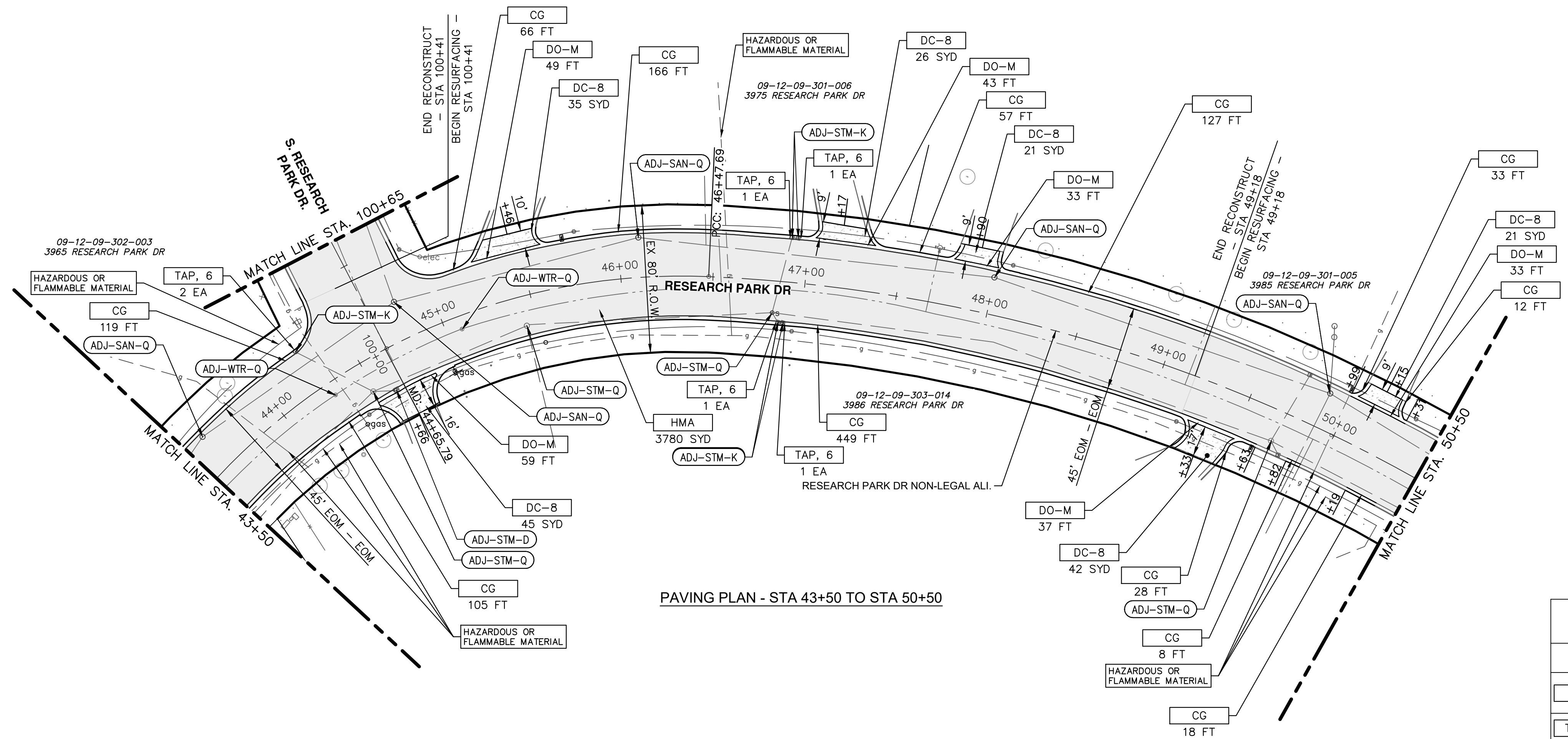
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ROAD PLAN AND PROFILE - STA 36+50 TO STA 43+50

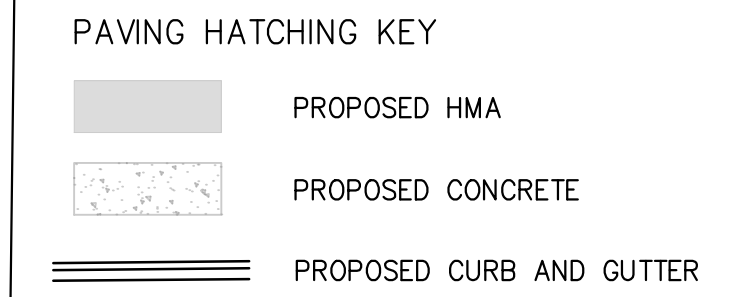
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24 OF 41

DRAWING No.
2022-035-24

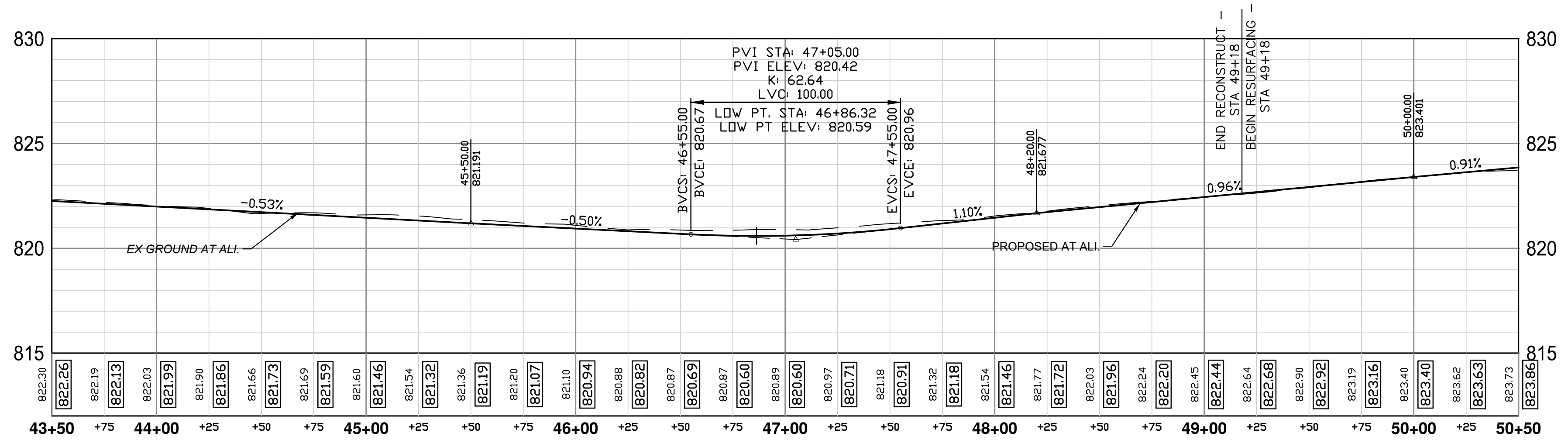
REV.	DESCRIPTION	DATE	DRAWN	CHECKED
1	ADDENDUM NO. 1	3/14/2023	JAB	DAD



PAVING PLAN - STA 43+50 TO STA 50+50



CONSTRUCTION KEY	
KEY	DESCRIPTION
HMA	PLACE HMA, EL. PLACE MATERIAL IN LIFTS ACCORDING TO THE TYPICAL SECTION AND AS DIRECTED BY THE ENGINEER
TAP, 6	CORE DRAINAGE STRUCTURE TAP, 6 INCH
CG	PLACE CURB AND GUTTER, CONC, BARRIER
DO-M	PLACE DRIVEWAY OPENING, CONC, DET M
DC-8	PLACE DRIVEWAY, NONREINF CONC, 8 INCH, PLACE AND COMPACT 6 INCH SUBBASE, CIP
ABO	ADJUST BY OTHERS
ADJ-XXX	ADJUST GATE VALVE BOX, MONUMENT BOX, OR GAS BOX.
ADJ-SXX	ADJUST STRUCTURE COVER



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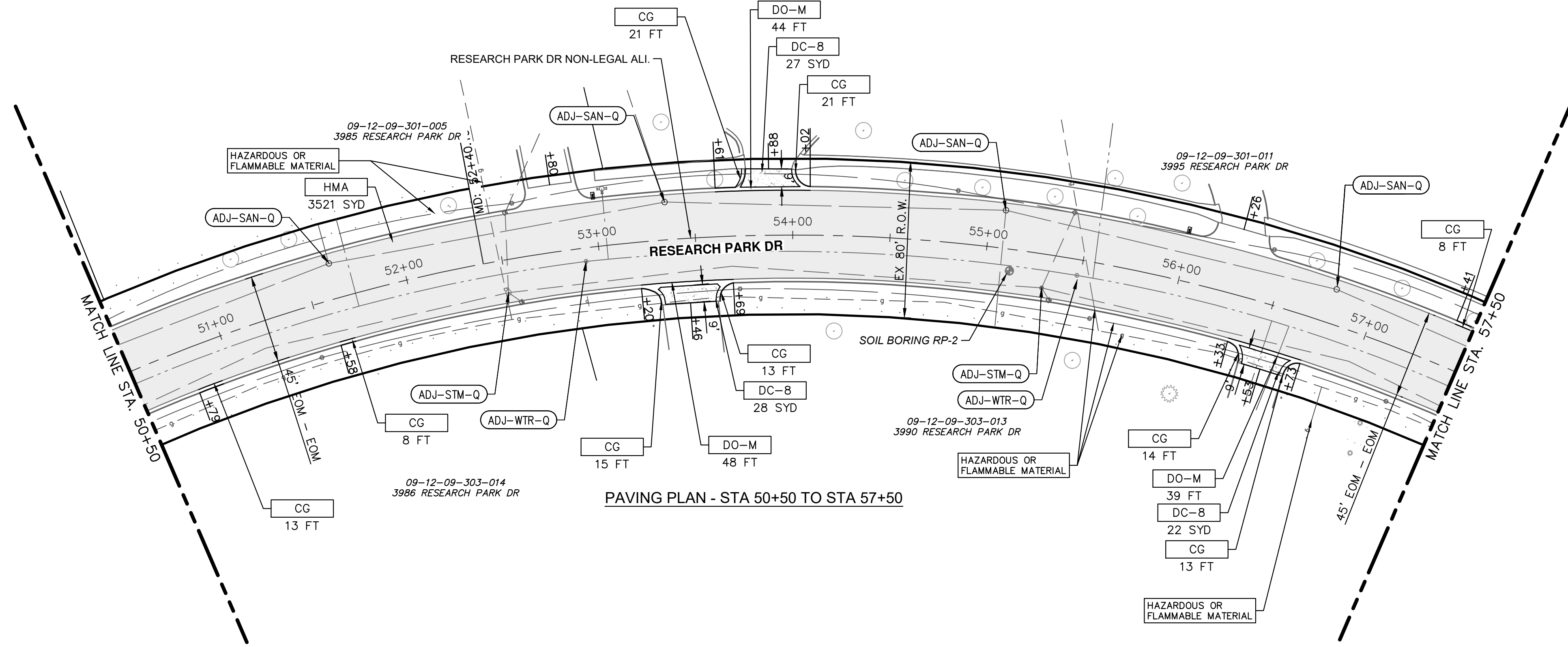
ROAD PLAN AND PROFILE - STA 43+50 TO STA 50+50

SHEET No.

2022-035-25

SCALE PLAN: 1" = 40' HORIZ
1" = 5' VERT

25 OF 41



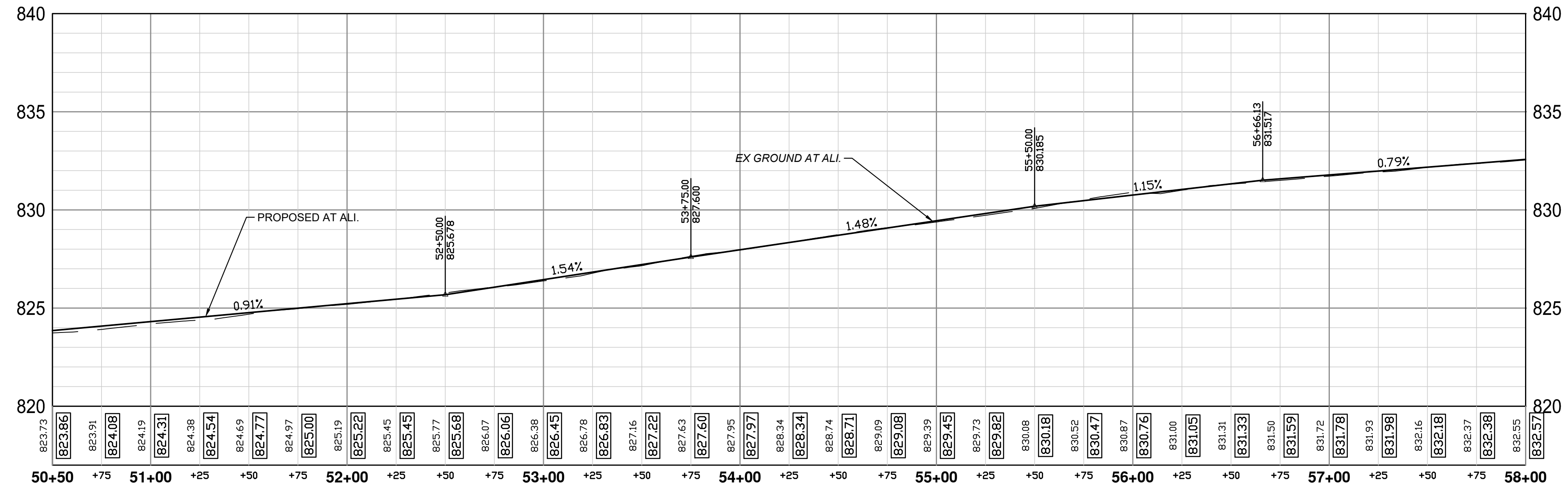
PAVING PLAN - STA 50+50 TO STA 57+50

PAVING HATCHING KEY

	PROPOSED HMA
	PROPOSED CONCRETE
	PROPOSED CURB AND GUTTER

CONSTRUCTION KEY

KEY	DESCRIPTION
HMA	PLACE HMA, EL. PLACE MATERIAL IN LIFTS ACCORDING TO THE TYPICAL SECTION AND AS DIRECTED BY THE ENGINEER
TAP, 6	CORE DRAINAGE STRUCTURE TAP, 6 INCH
CG	PLACE CURB AND GUTTER, CONC, BARRIER
DO-M	PLACE DRIVEWAY OPENING, CONC, DET M
DC-8	PLACE DRIVEWAY, NONREINF CONC, 8 INCH, PLACE AND COMPACT 6 INCH SUBBASE, CIP
ABO	ADJUST BY OTHERS
ADJ-XXX	ADJUST GATE VALVE BOX, MONUMENT BOX, OR GAS BOX.
ADJ-SXX	ADJUST STRUCTURE COVER



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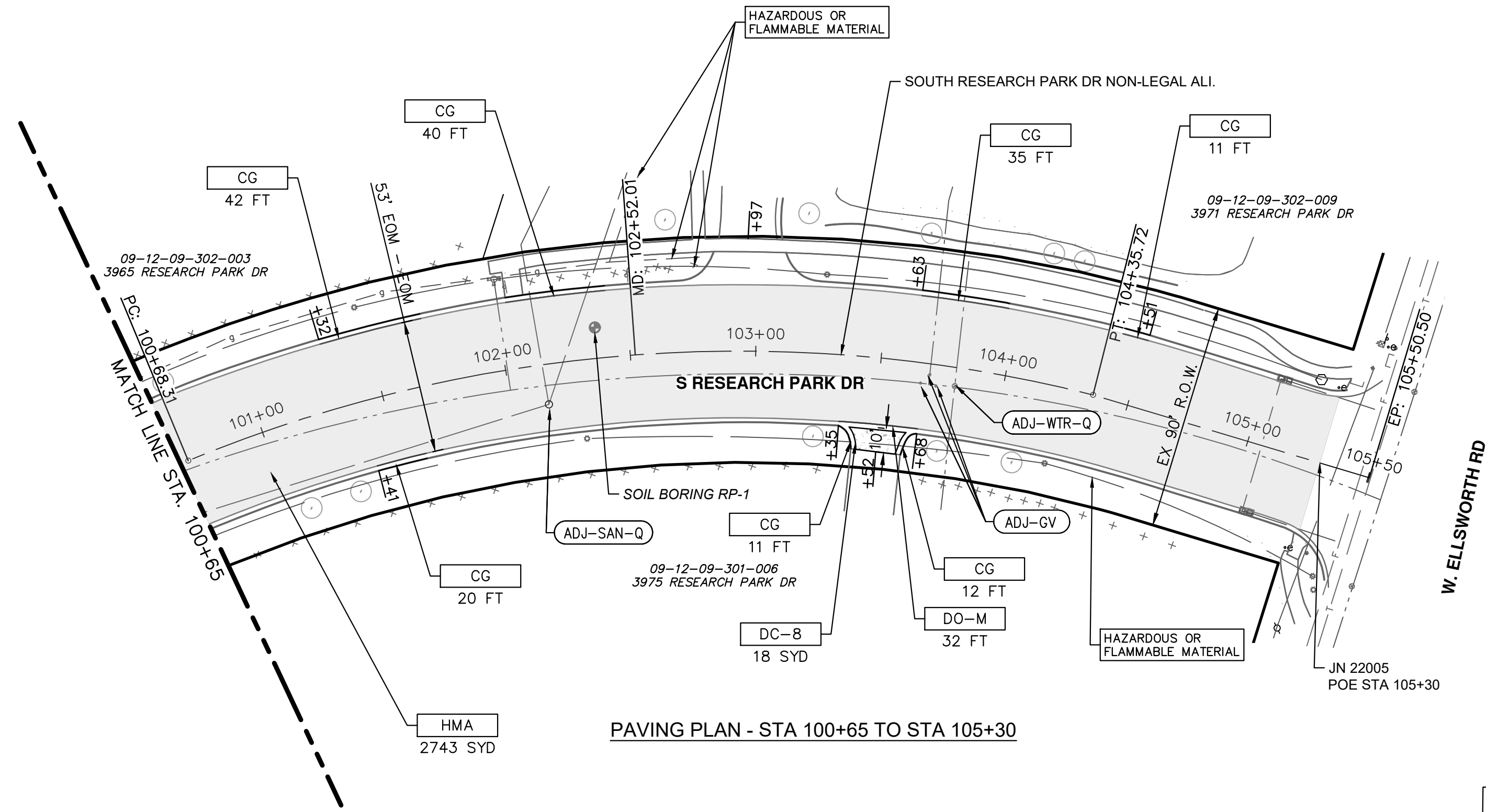
ROAD PLAN AND PROFILE - STA 50+50 TO STA 58+00

SCALE PLAN: 1" = 40' HORIZ
1" = 5' VERT

DRAWING No.
2022-035-26

SHEET No.

26 OF 41



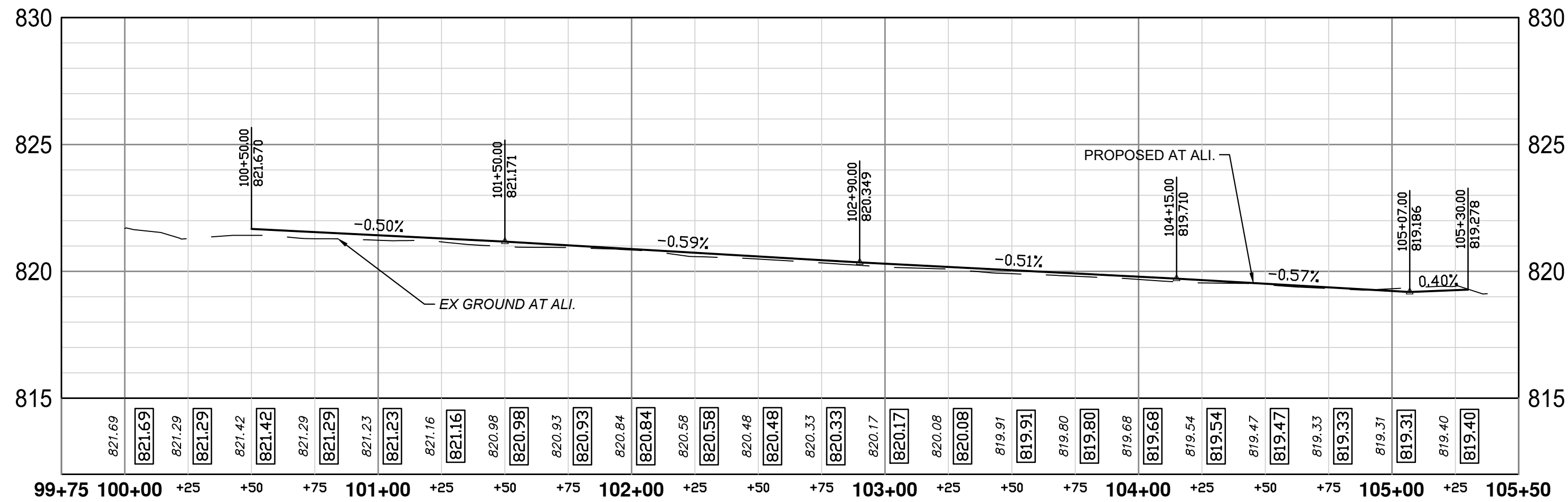
PAVING PLAN - STA 100+65 TO STA 105+30

PAVING HATCHING KEY

	PROPOSED HMA
	PROPOSED CONCRETE
	PROPOSED CURB AND GUTTER

CONSTRUCTION KEY

KEY	DESCRIPTION
HMA	PLACE HMA, EL. PLACE MATERIAL IN LIFTS ACCORDING TO THE TYPICAL SECTION AND AS DIRECTED BY THE ENGINEER
TAP, 6	CORE DRAINAGE STRUCTURE TAP, 6 INCH
CG	PLACE CURB AND GUTTER, CONC, BARRIER
DO-M	PLACE DRIVEWAY OPENING, CONC, DET M
DC-8	PLACE DRIVEWAY, NONREINF CONC, 8 INCH, PLACE AND COMPACT 6 INCH SUBBASE, CIP
ABO	ADJUST BY OTHERS
ADJ-XXX	ADJUST GATE VALVE BOX, MONUMENT BOX, OR GAS BOX.
ADJ-SXX	ADJUST STRUCTURE COVER



REV.	DESCRIPTION	DATE	DRAWN	CHECKED
1	ADDENDUM NO. 1	3/14/2023	JAB	DAD

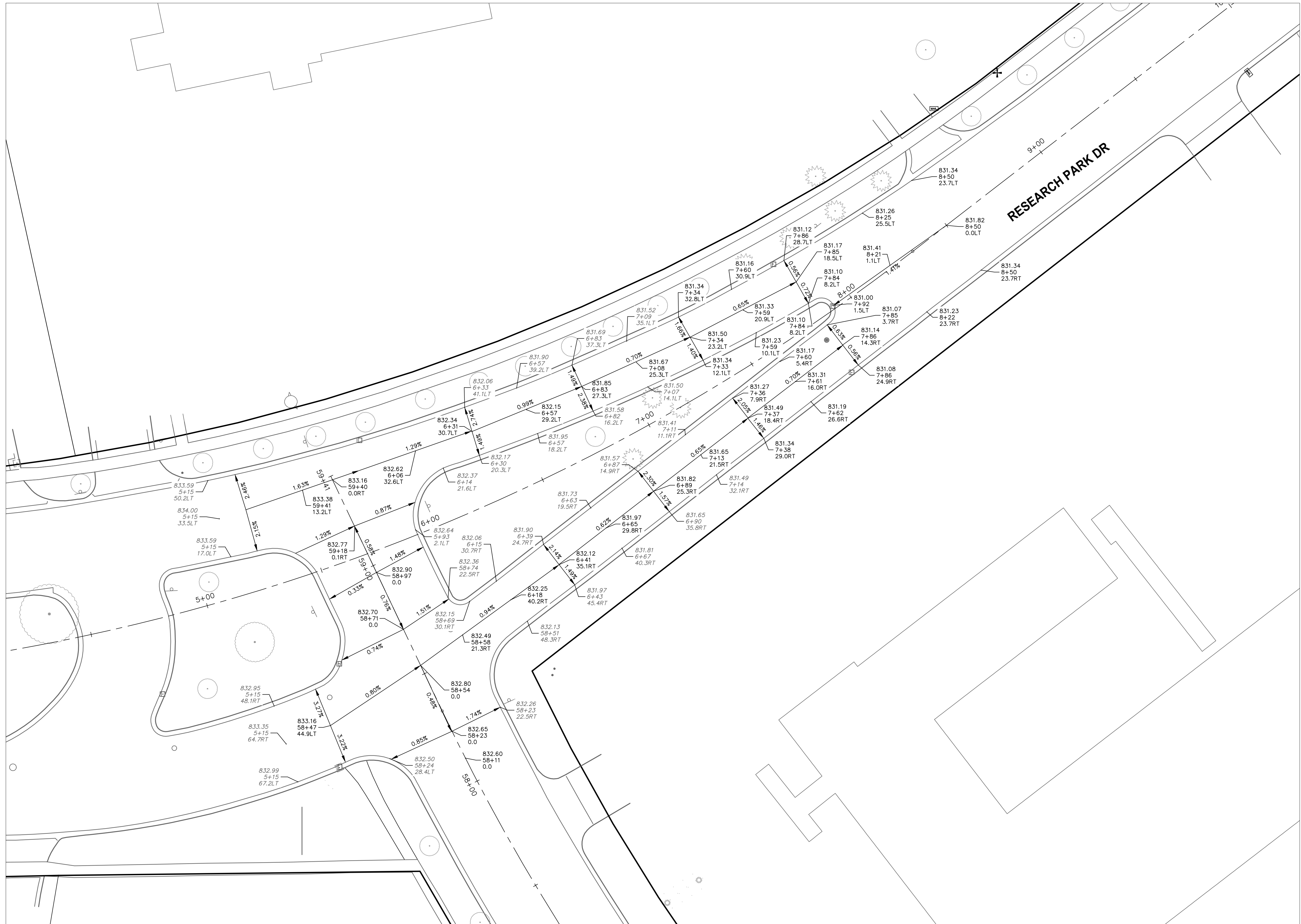
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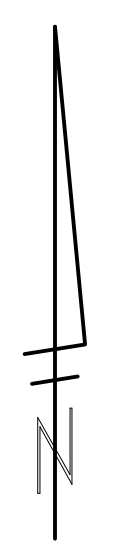
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ROAD PLAN AND PROFILE - STA 100+65 TO POE STA 105+30

DRAWING No. 2022-035-27
SCALE PLAN: 1" = 40' PROFILE: 1" = 40' HORIZ
1" = 5' VERT

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DETAIL GRADES - BOULEVARD



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 DETAIL GRADING PLAN

SCALE: 1" = 20'

DRAWING No. 2022-035-28

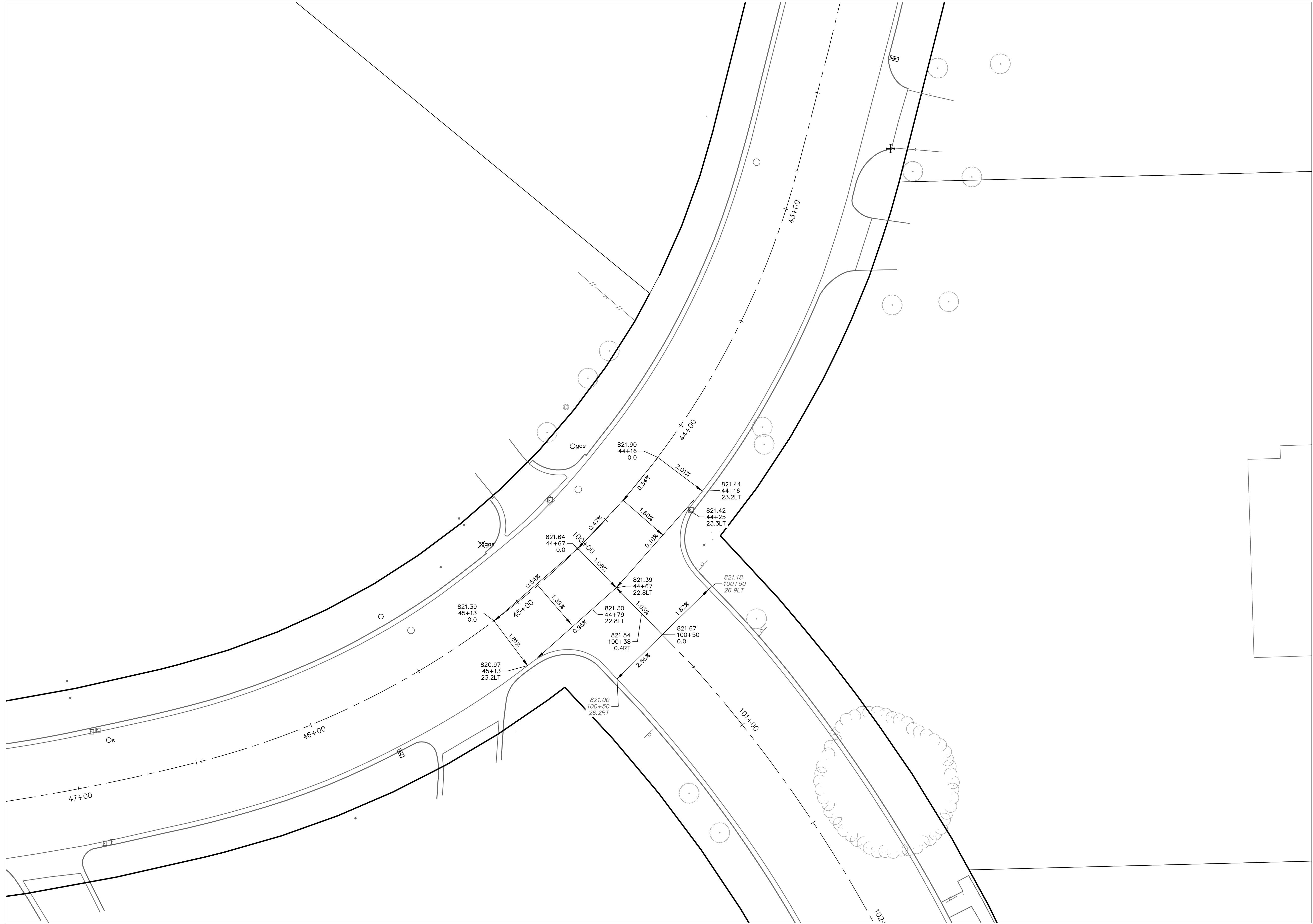
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1	ADDENDUM NO. 1	3/14/2023	JAB	DAD

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DETAIL GRADES - S RESEARCH PARK DRIVE INTERSECTION



REV	DESCRIPTION	DATE	DRAWN	CHECKED
1	APPENDUM NO. 1	3/14/2023	JAB	DAD

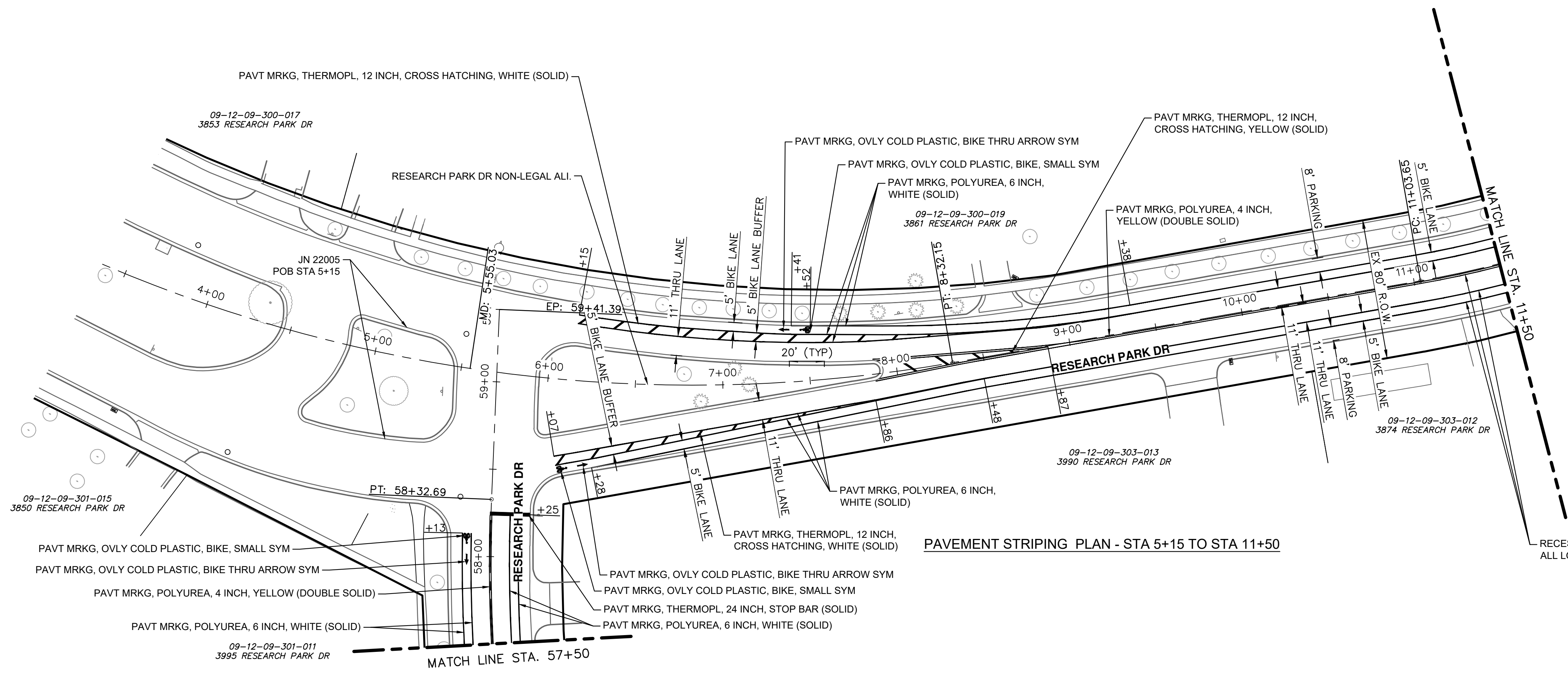
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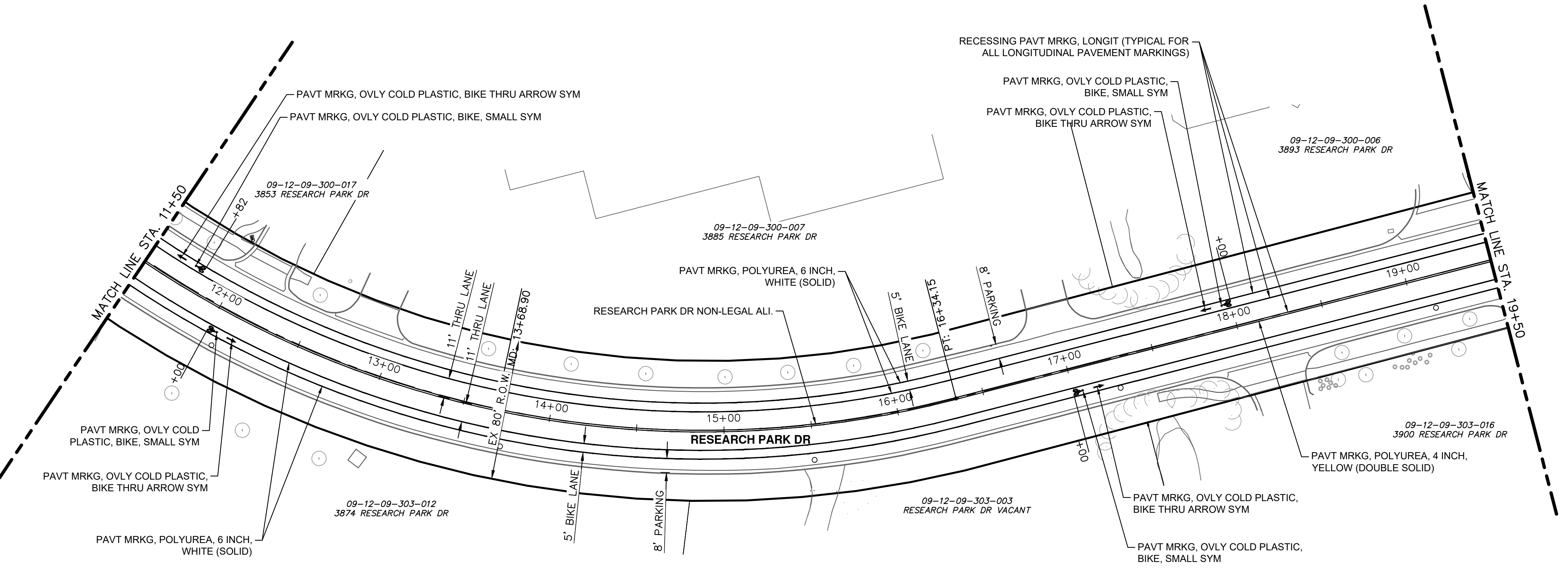
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DETAIL GRADING PLAN

SCALE: 1" = 20'
DRAWING No. 2022-035-29

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PAVEMENT STRIPING PLAN - STA 5+15 TO STA 11+50



PAVEMENT STRIPING PLAN - STA 11+50 TO STA 19+50



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1		ADDED NO. 1	3/14/2023	JAB	DAD

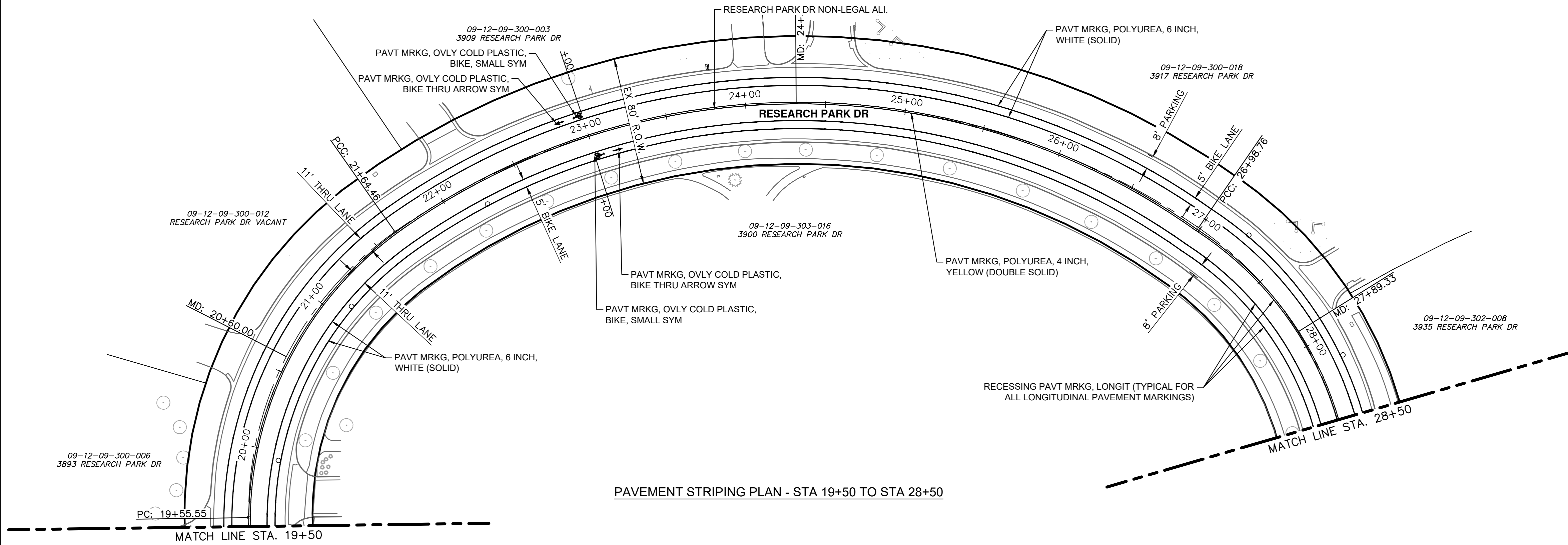
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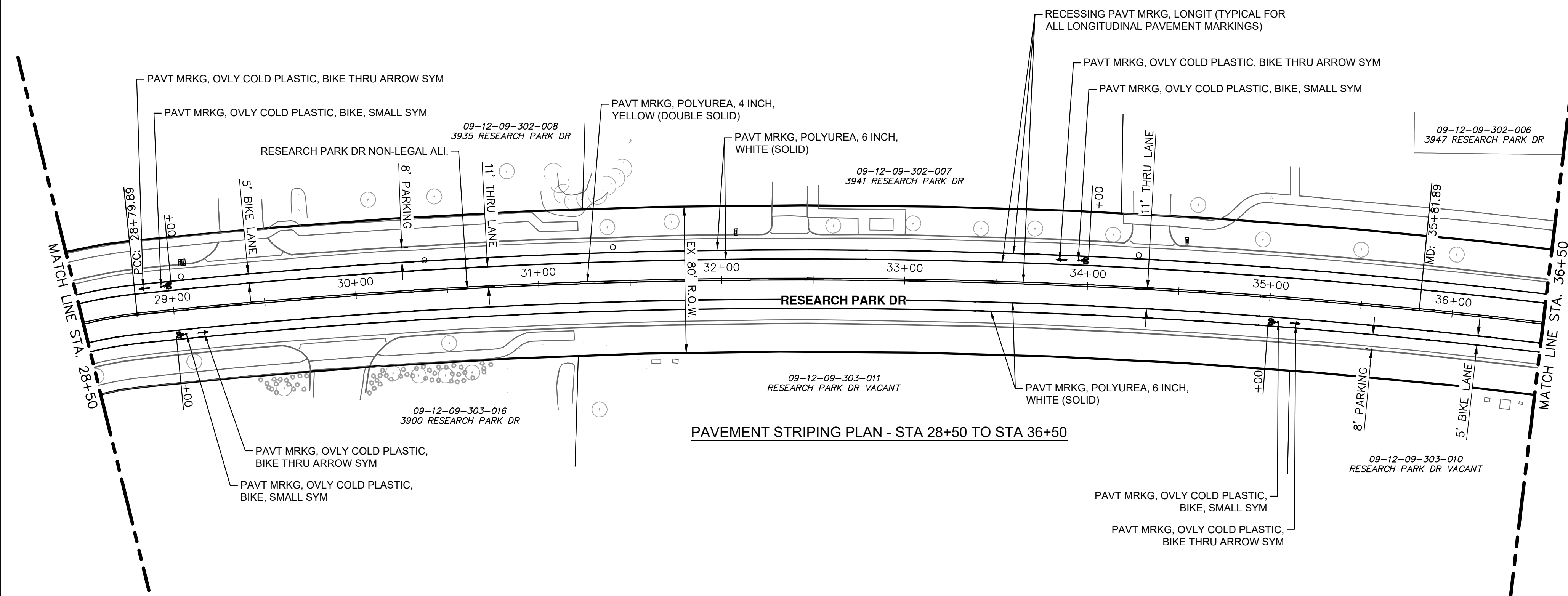
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PAVEMENT MARKING PLAN - POB TO STA 19+50

SCALE: 1" = 40'
DRAWING No. 2022-035-30

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PAVEMENT STRIPING PLAN - STA 19+50 TO STA 28+50



PAVEMENT STRIPING PLAN - STA 28+50 TO STA 36+50



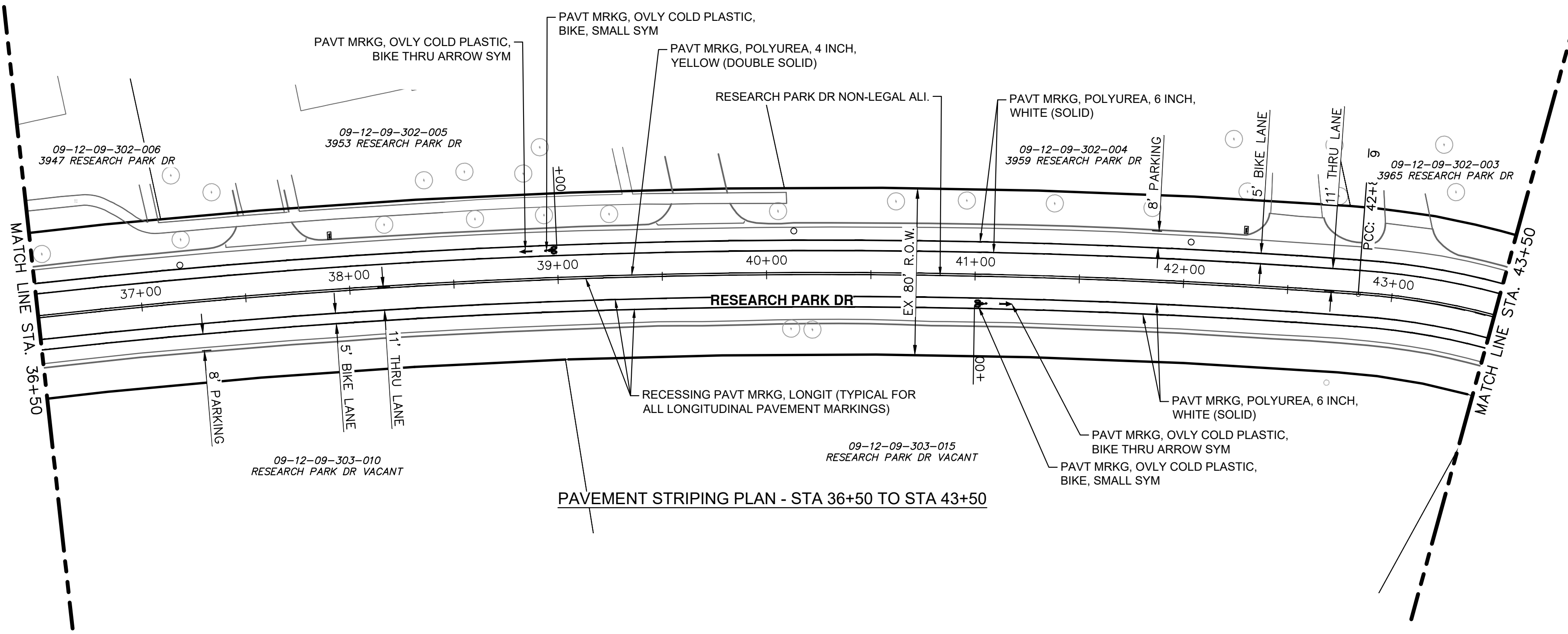
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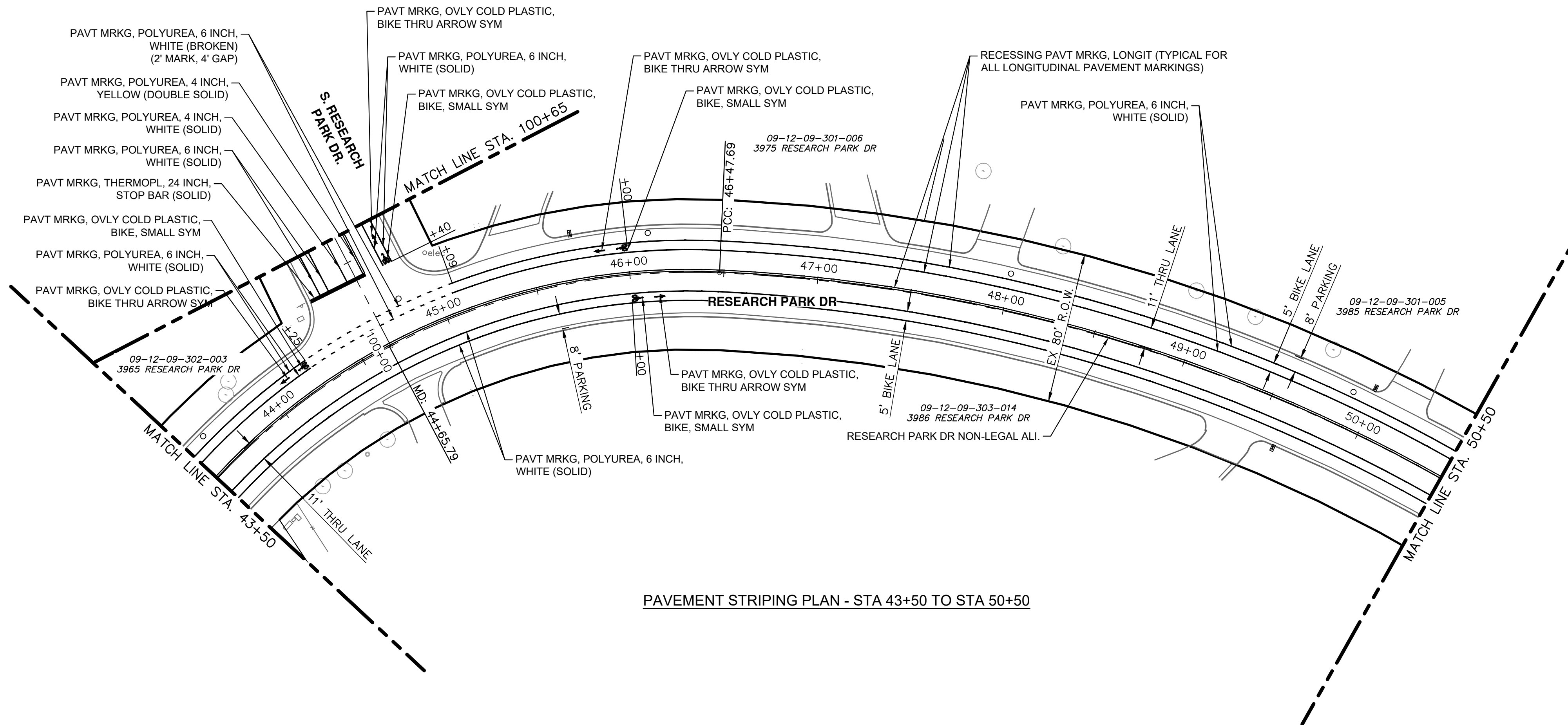
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PAVEMENT MARKING PLAN - STA 19+50 TO STA 36+50

SCALE: 1" = 40'
DRAWING No. 2022-035-31

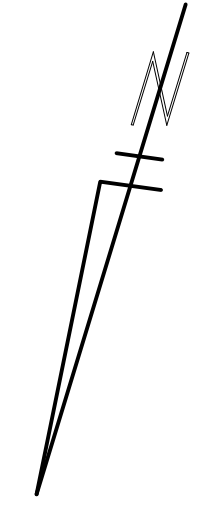
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PAVEMENT STRIPING PLAN - STA 36+50 TO STA 43+50



PAVEMENT STRIPING PLAN - STA 43+50 TO STA 50+50



REV.	DESCRIPTION	DATE	DRAWN	CHECKED
1	ADDENDUM NO. 1	3/14/2023	JAB	DAD

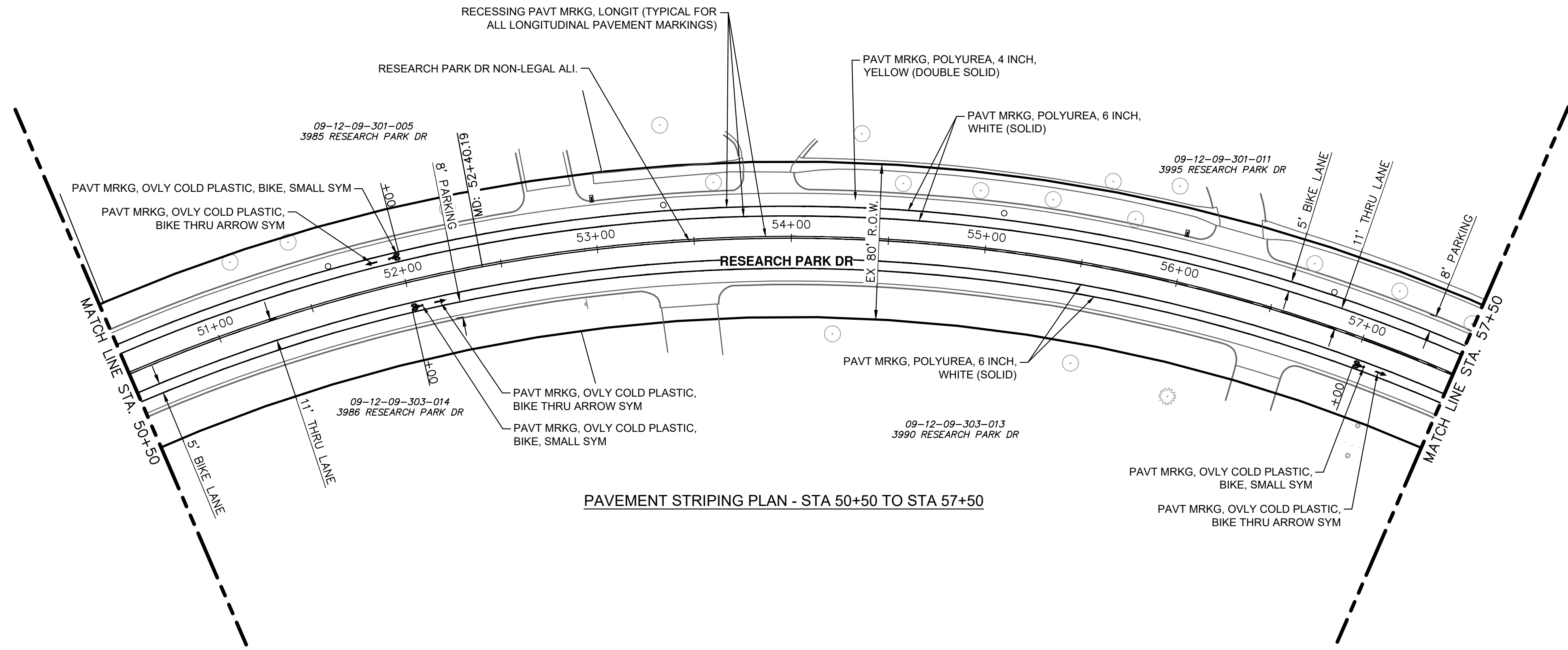
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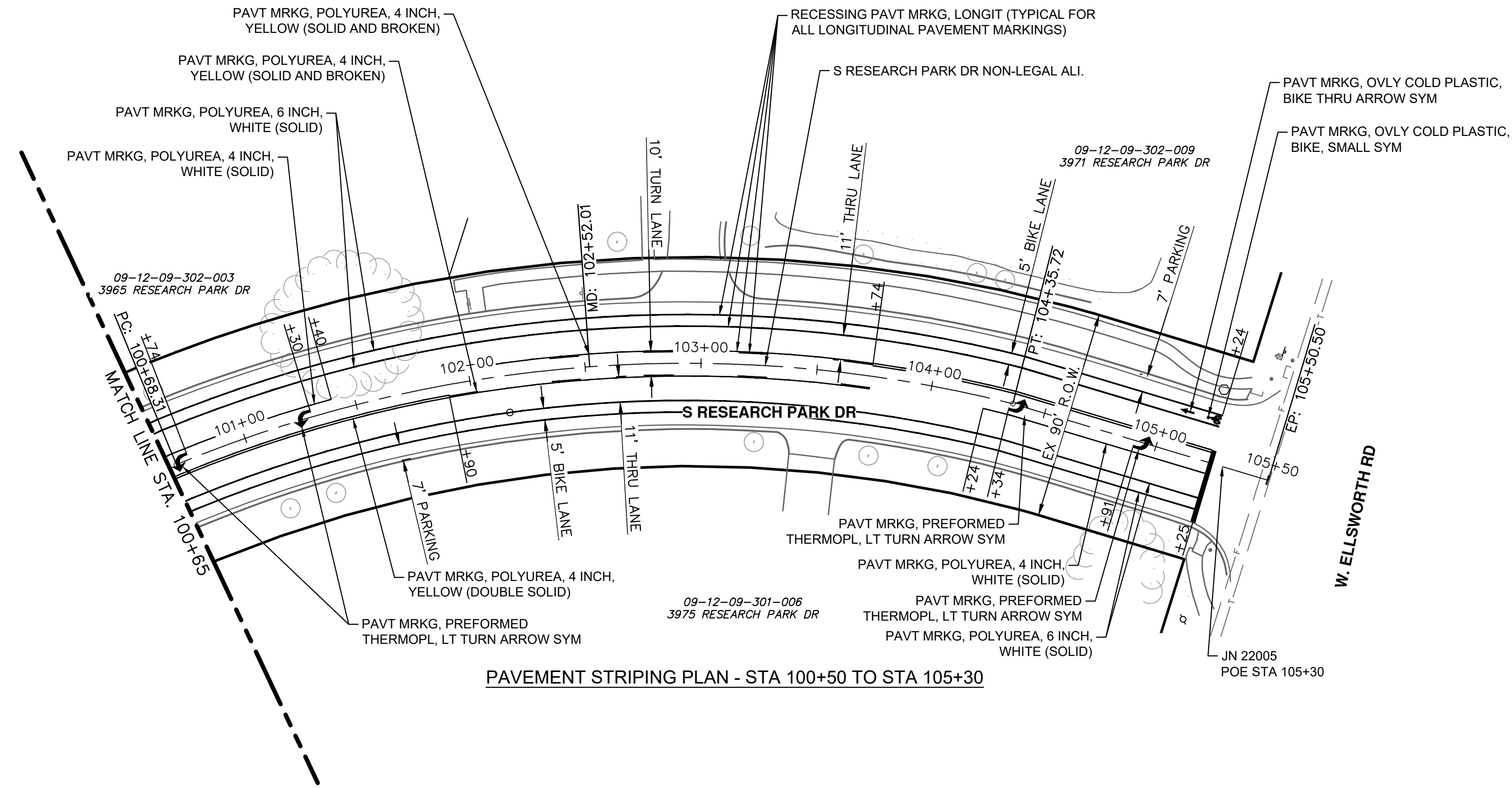
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RESEARCH PARK DRIVE
IMPROVEMENTS PROJECT
PAVEMENT MARKING PLAN - STA 36+50 TO STA 50+50

SCALE: 1" = 40'
DRAWING No. 2022-035-32

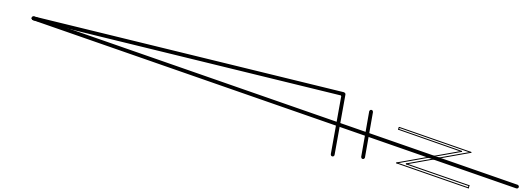
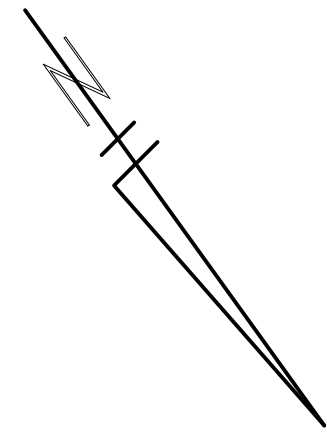
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PAVEMENT STRIPING PLAN - STA 50+50 TO STA 57+50



PAVEMENT STRIPING PLAN - STA 100+50 TO STA 105+30



REV.	DESCRIPTION	DATE	DRAWN	CHECKED
1	ADDENDUM NO. 1	3/14/2023	JAB	DAD

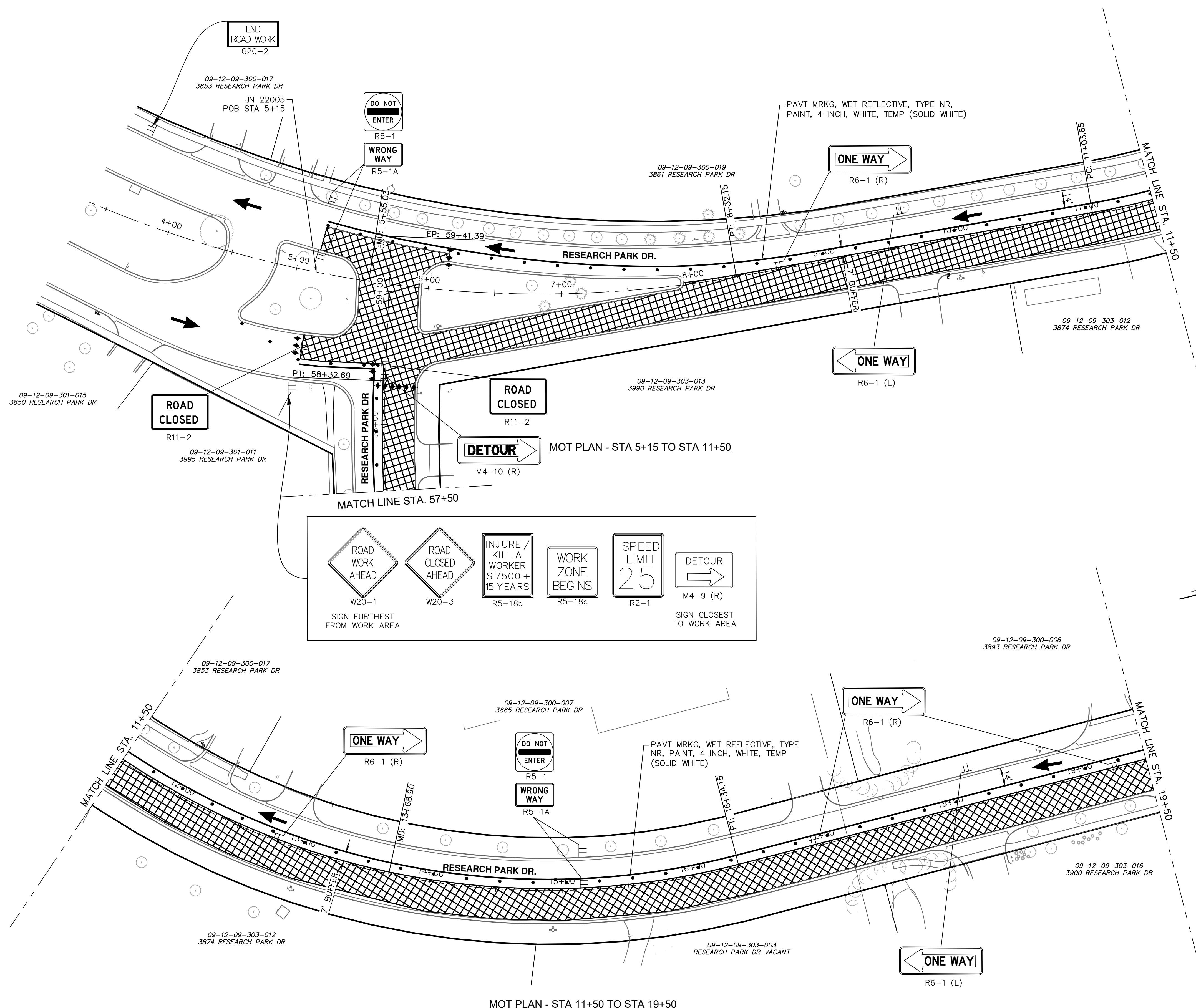
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PAVEMENT MARKING PLAN - STA 50+50 TO POE

SCALE: 1" = 40'
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TRAFFIC CONTROL LEGEND

- ◆◆◆ BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED
- ⊥ TEMPORARY SIGN
- CHANNELIZING DEVICE @ 50' SPACING UNLESS NOTED OTHERWISE
- ➔ TRAFFIC FLOW ARROW
- ▨ WORK AREA STAGE 1
- ▩ WORK AREA STAGE 1A


NOTES: MAINTAIN ACCESS TO DRIVEWAYS AT ALL TIMES AS DIRECTED BY THE ENGINEER.
 SIGNS PLACED AT 100' SPACING. ADJUST AS NECESSARY TO FIT FIELD CONDITIONS.

SIGN FURTHEST FROM WORK AREA

- ROAD WORK AHEAD (W20-1)
- ROAD CLOSED AHEAD (W20-3)
- INJURE KILL A WORKER \$7500 + 15 YEARS (R5-18b)
- WORK ZONE BEGINS (R5-18c)
- SPEED LIMIT 25 (R2-1)


SIGN CLOSEST TO WORK AREA

- DETOUR (M4-9 (R))



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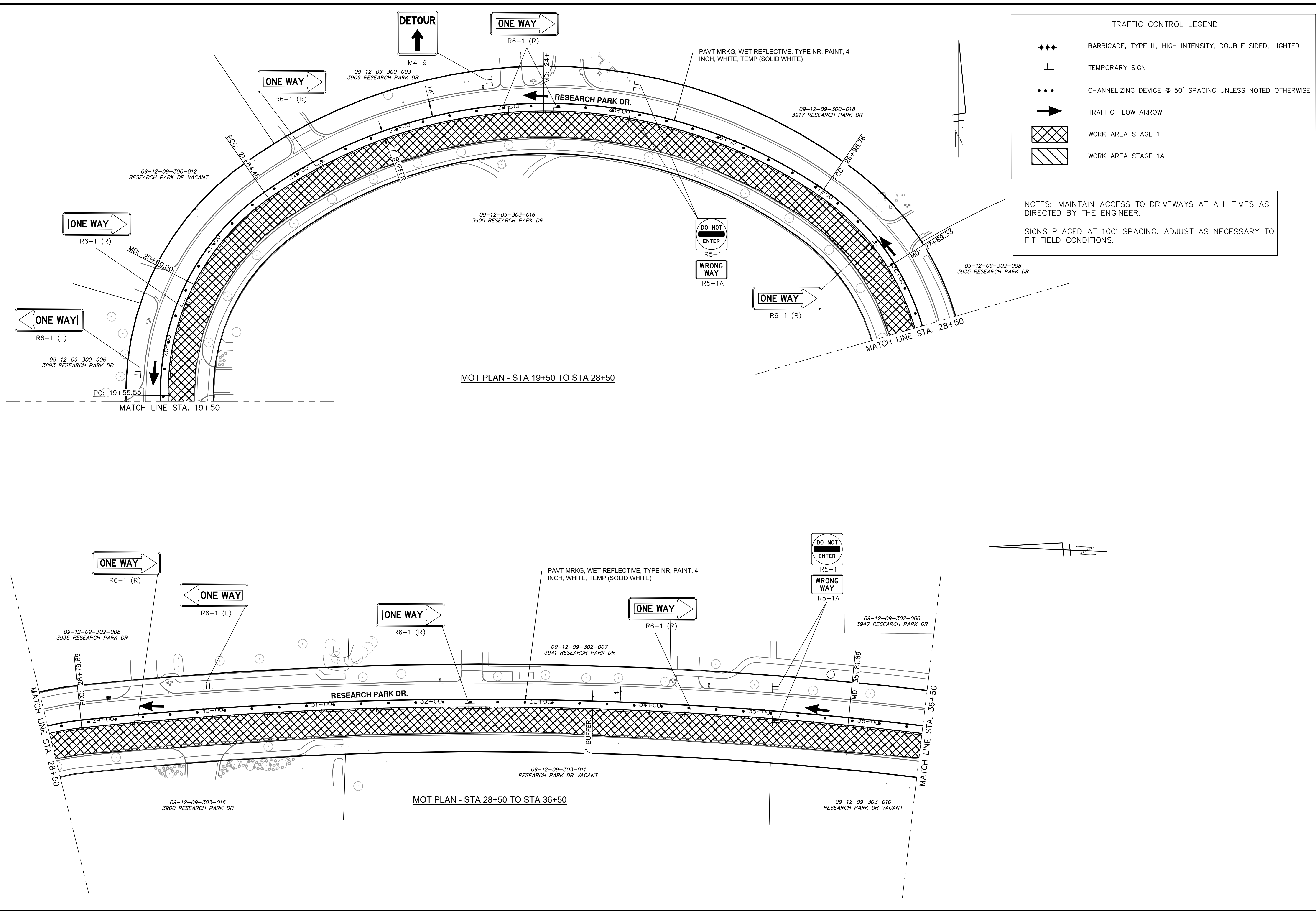
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 MAINTENANCE OF TRAFFIC STI-1

DRAWING No. 2022-035-34
 SHEET No. 34 OF 41

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APPENDIX NO.	DESCRIPTION
1	

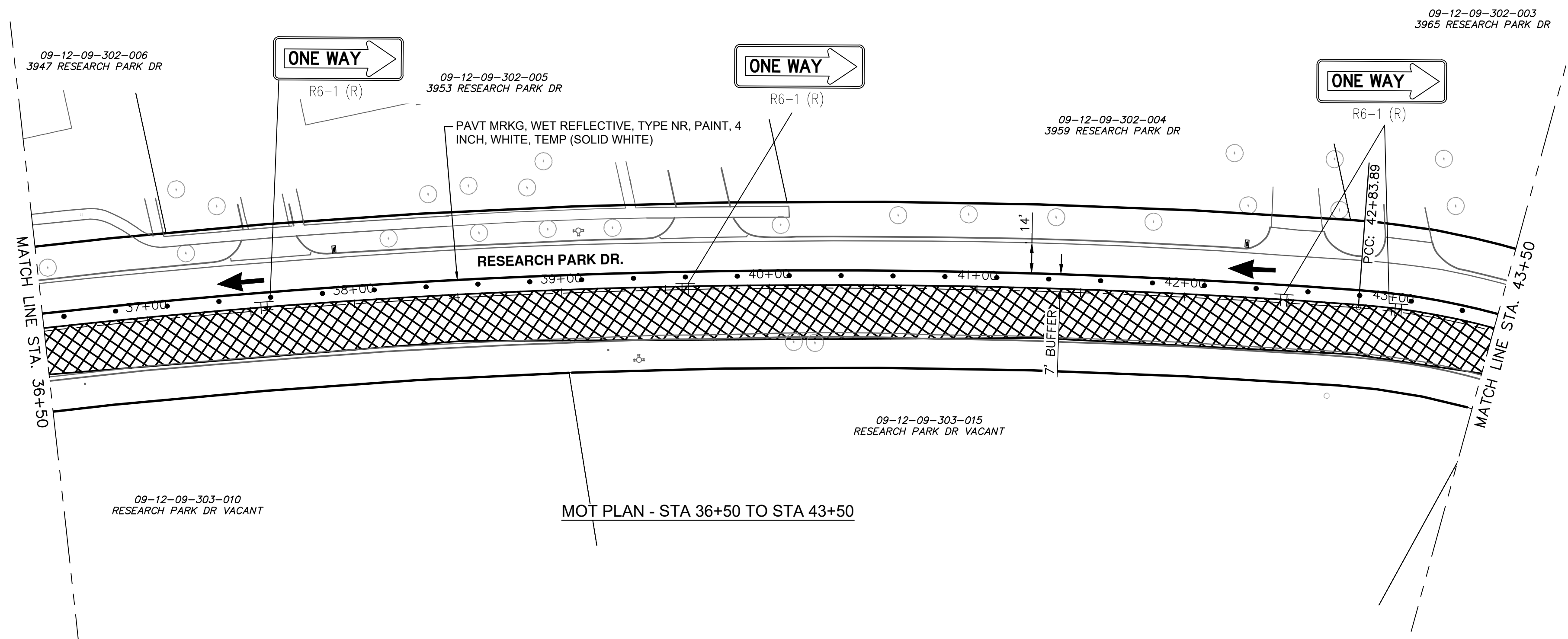
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IMPROVEMENTS PROJECT
MAINTENANCE OF TRAFFIC ST-1-2

SCALE: #####

DRAWING No. 2022-035-35

SHEET No. 35 OF 41

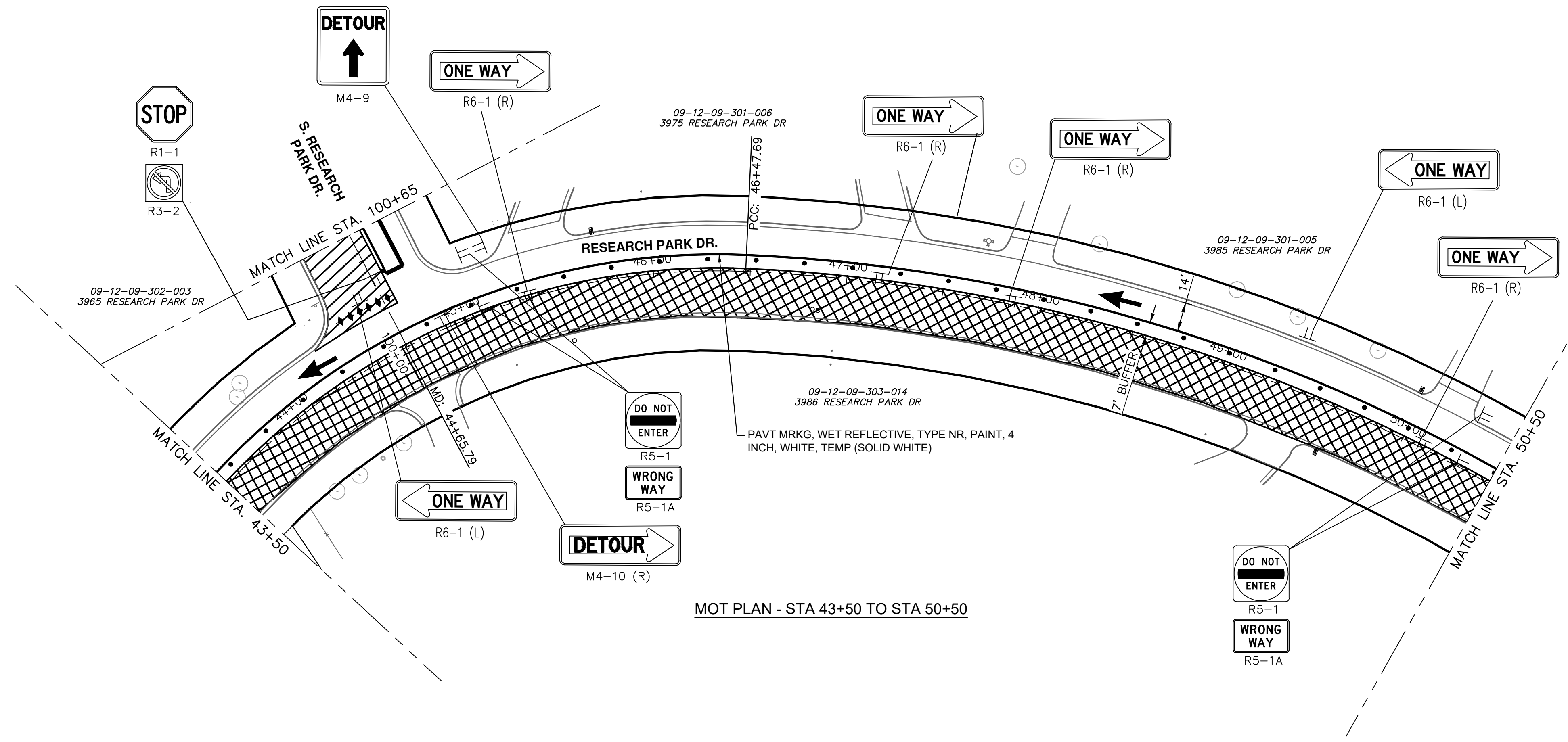
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TRAFFIC CONTROL LEGEND

- ◆◆◆ BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED
- ⊥ TEMPORARY SIGN
- CHANNELIZING DEVICE @ 50' SPACING UNLESS NOTED OTHERWISE
- ➔ TRAFFIC FLOW ARROW
- [Hatched Box] WORK AREA STAGE 1
- [Diagonal Lines Box] WORK AREA STAGE 1A

NOTES: MAINTAIN ACCESS TO DRIVEWAYS AT ALL TIMES AS DIRECTED BY THE ENGINEER.
 SIGNS PLACED AT 100' SPACING. ADJUST AS NECESSARY TO FIT FIELD CONDITIONS.



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 MAINTENANCE OF TRAFFIC ST1-3

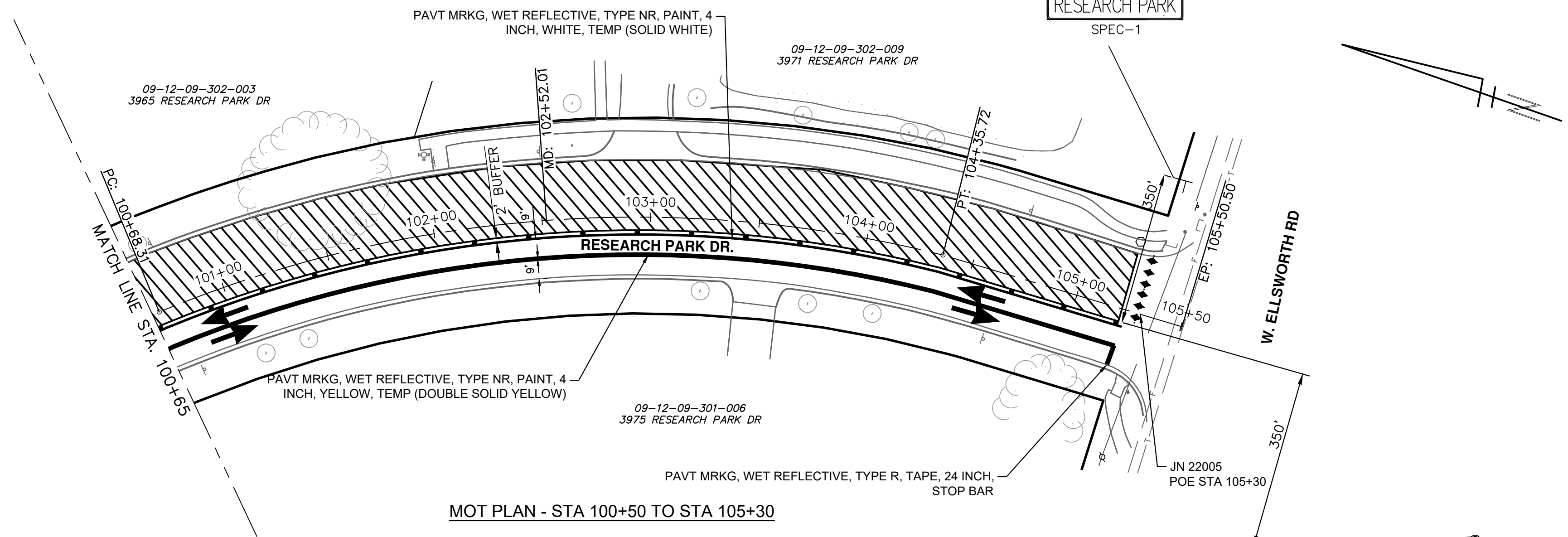
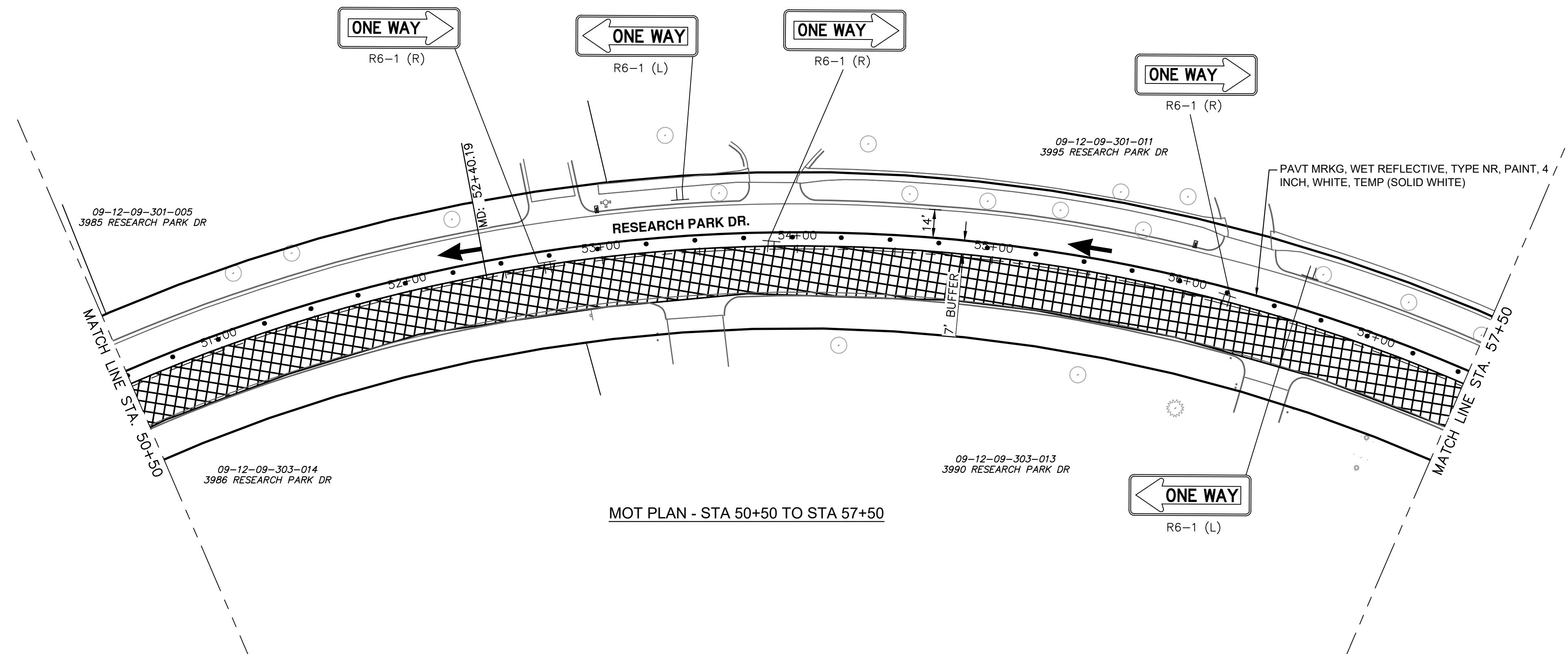
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TRAFFIC CONTROL LEGEND

- ◆◆◆ BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED
- ||| TEMPORARY SIGN
- ... CHANNELIZING DEVICE @ 50' SPACING UNLESS NOTED OTHERWISE
- ➔ TRAFFIC FLOW ARROW
- ▨ WORK AREA STAGE 1
- ▩ WORK AREA STAGE 1A

NOTES: MAINTAIN ACCESS TO DRIVEWAYS AT ALL TIMES AS DIRECTED BY THE ENGINEER.

SIGNS PLACED AT 100' SPACING. ADJUST AS NECESSARY TO FIT FIELD CONDITIONS.



TEMPORARY TRAFFIC CONTROL SIGNS

Sign Code	Size	Area (Sft)	Total					
			Stages 1 & 1A		Stages 2 & 2A			
			Quantity	Area (Sft)	Quantity	Area (Sft)	Project	
							Quantity	Area (Sft)
*D3-1	42 x 10	2.92	2	5.83	2	5.83	2	5.83
G20-2	36 x 18	4.50	1	4.50	1	4.50	1	4.50
M4-10(L)	48 x 18	6.00	0	0.00	1	6.00	1	6.00
M4-10(R)	48 x 18	6.00	2	12.00	0	0.00	2	12.00
M4-9(L)	30 x 24	5.00	0	0.00	0	0.00	0	0.00
M4-9(R)	30 x 24	5.00	1	5.00	0	0.00	1	5.00
M4-9(S)	30 x 24	5.00	2	10.00	3	20.00	3	15.00
R1-1	30 x 30	6.25	1	6.25	0	0.00	1	6.25
R2-1	24 x 30	5.00	1	5.00	1	5.00	1	5.00
R3-1	24 x 24	4.00	0	0.00	2	8.00	2	8.00
R3-2	24 x 24	4.00	1	4.00	0	0.00	1	4.00
R3-5R	30 x 36	7.50	0	0.00	0	0.00	0	0.00
R5-1	30 x 30	6.25	12	75.00	12	75.00	12	75.00
R5-1A	36 x 24	6.00	12	72.00	12	72.00	12	72.00
R5-18S	48 x 60	20.00	1	20.00	1	20.00	1	20.00
R5-18c	48 x 48	16.00	1	16.00	1	16.00	1	16.00
R6-1(L)	36 x 12	3.00	8	24.00	23	69.00	23	69.00
R6-1(R)	36 x 12	3.00	23	69.00	8	24.00	23	69.00
R11-2	48 x 30	10.00	2	20.00	2	20.00	2	20.00
W20-1	36 x 36	9.00	3	27.00	3	27.00	3	27.00
W20-3	36 x 36	9.00	1	9.00	1	9.00	1	9.00
Total			378.75		375.50		442.75	

*Sign, Type B, Temp, Prismatic, Spec

811
Know what's below. Call Before you dig.

CITY OF ANN ARBOR PUBLIC SERVICES - ENGINEERING
RESEARCH PARK DRIVE IMPROVEMENTS PROJECT
MAINTENANCE OF TRAFFIC ST1-4

SCALE: #####

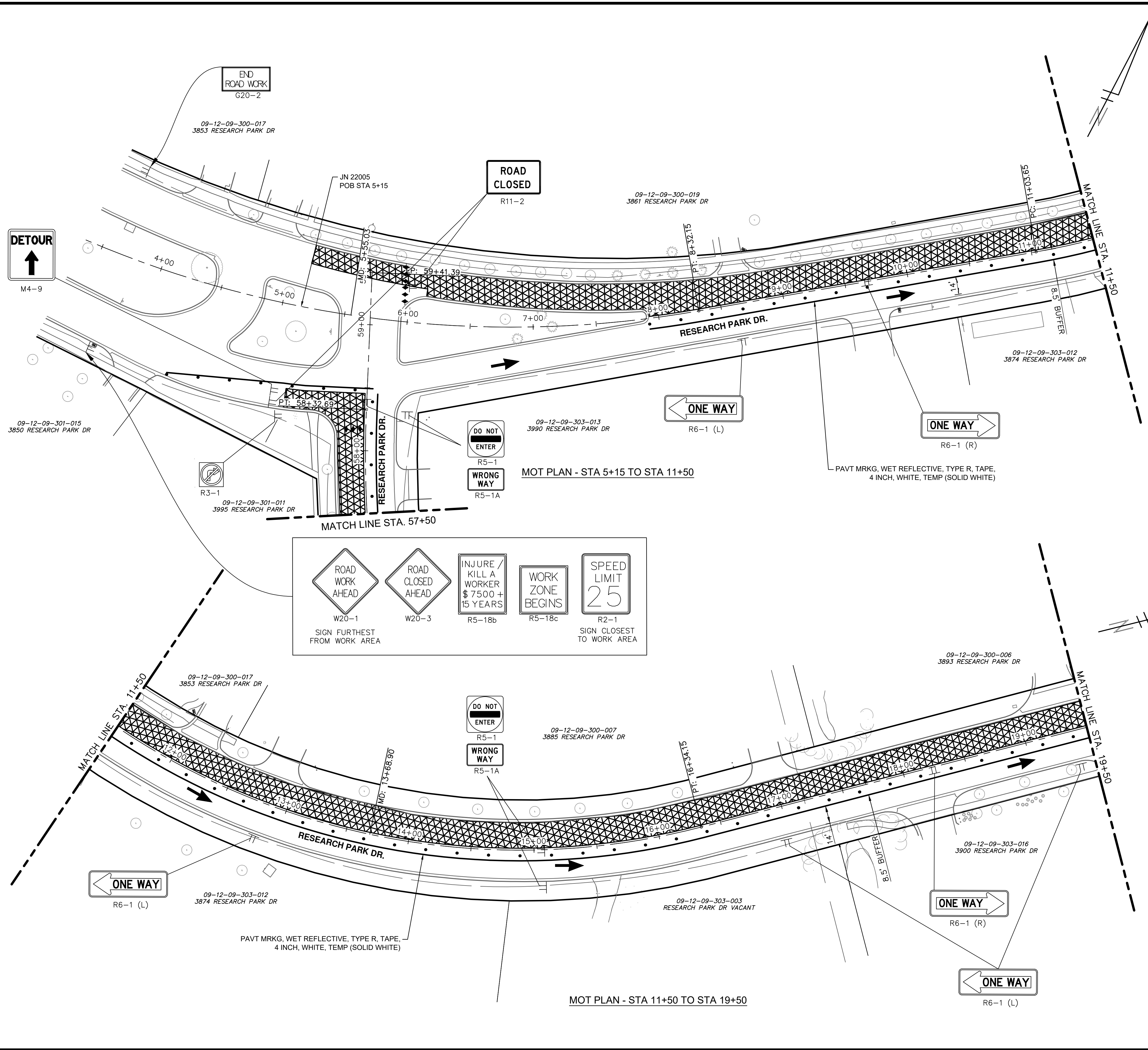
DRAWING No. 2022-035-37

SHEET No. 37 OF 41

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
1	ADDENDUM NO. 1	3/14/2023	JAB	DAD

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J:\AA\Design\AA22005-Research Park Drive\DWG\AA22005_Mtrf2.dwg Dwg Created: 7-Feb-23 - _g2 standard bw.stb - Plot Date: 14-Mar-23



TRAFFIC CONTROL LEGEND

- ◆◆◆ BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED
- ⊥ TEMPORARY SIGN
- ... CHANNELIZING DEVICE @ 50' SPACING UNLESS NOTED OTHERWISE
- ➔ TRAFFIC FLOW ARROW
- [Cross-hatched box] WORK AREA STAGE 2
- [Diagonal-hatched box] WORK AREA STAGE 2A

NOTES: MAINTAIN ACCESS TO DRIVEWAYS AT ALL TIMES AS DIRECTED BY THE ENGINEER.

SIGNS PLACED AT 100' SPACING. ADJUST AS NECESSARY TO FIT FIELD CONDITIONS.

SIGN LEGEND

W20-1
 SIGN FURTHEST FROM WORK AREA

W20-3
 SIGN FURTHEST FROM WORK AREA

R5-18b
 SIGN FURTHEST FROM WORK AREA

R5-18c
 SIGN FURTHEST FROM WORK AREA

R2-1
 SIGN CLOSEST TO WORK AREA

811
Know what's below. Call before you dig.

REV.	DATE	DESCRIPTION
1	3/14/2023	

CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

RESEARCH PARK DRIVE IMPROVEMENTS PROJECT

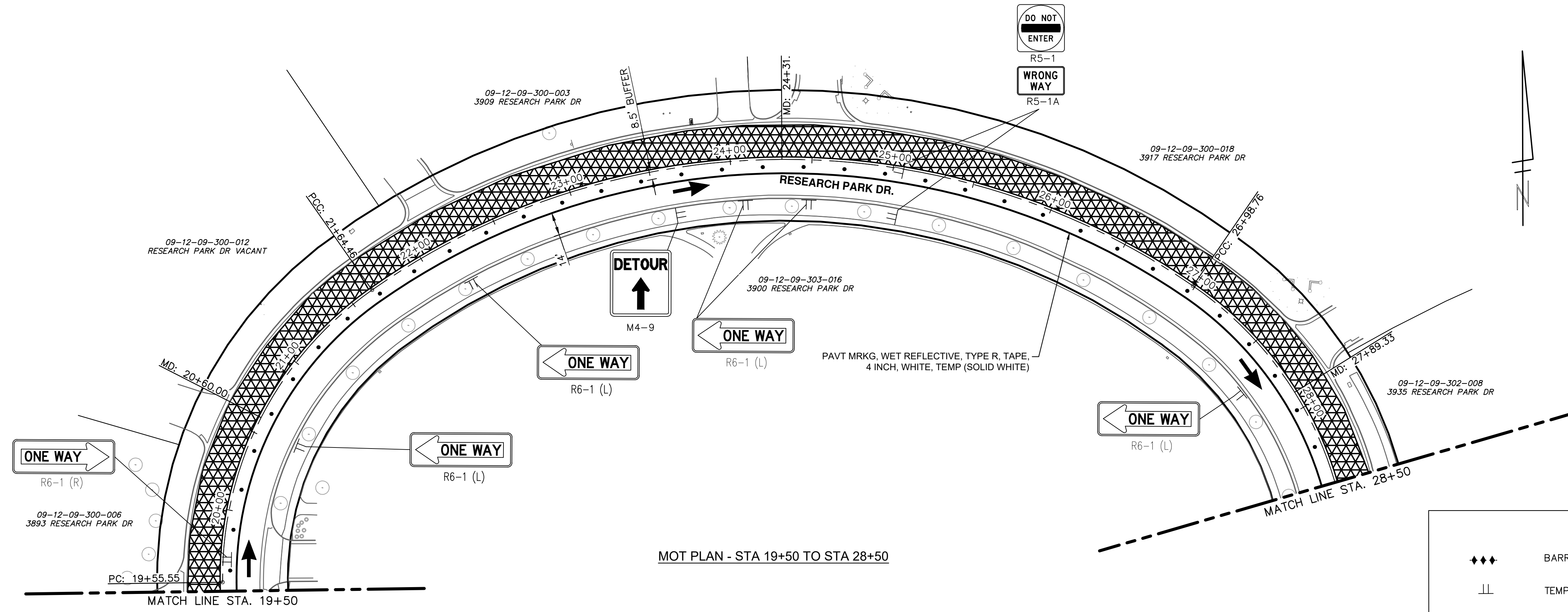
MAINTENANCE OF TRAFFIC ST2-1

SCALE: 1" = 40'

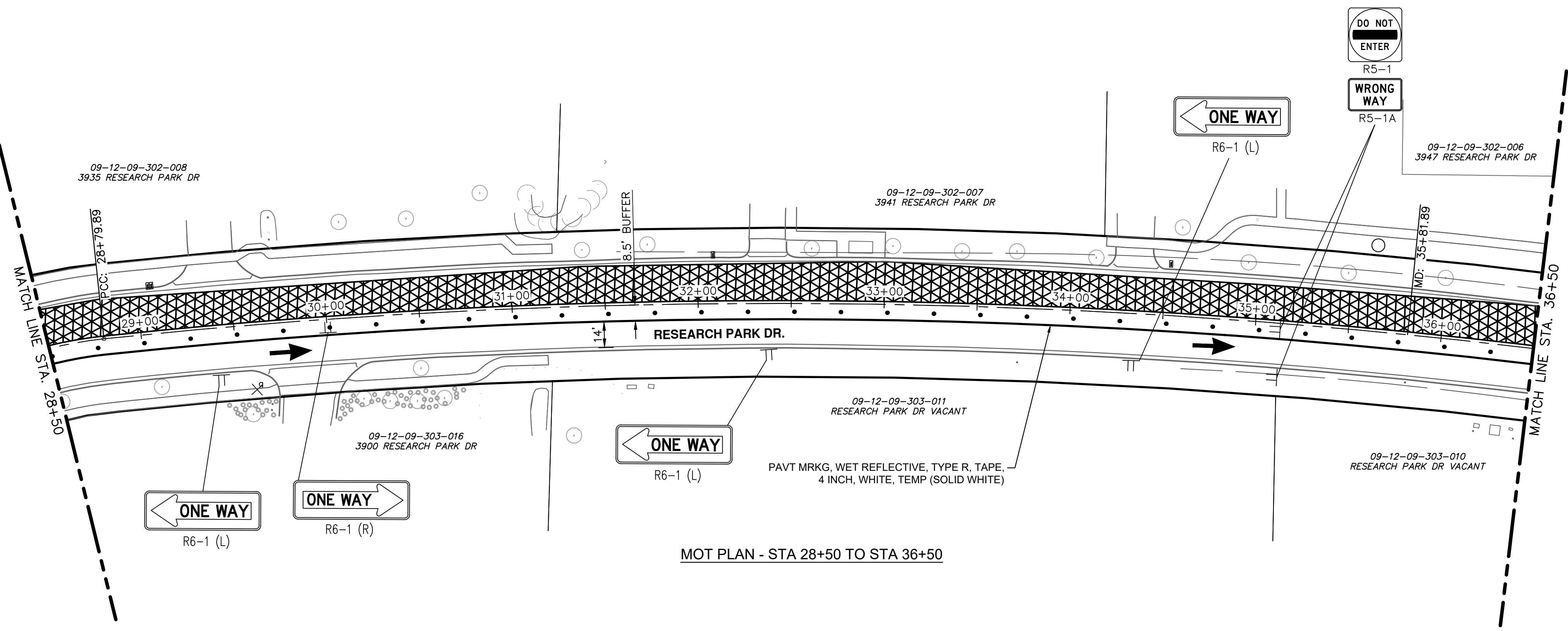
DRAWING No. 2022-035-38

SHEET No. 38 OF 41

J:\AA\Design\AA22005-Research Park Drive\AA22005_Mtrf2.dwg Dwg Created: 7-Feb-23 - _g2 standard bw.stb - Plot Date: 14-Mar-23



MOT PLAN - STA 19+50 TO STA 28+50



MOT PLAN - STA 28+50 TO STA 36+50

TRAFFIC CONTROL LEGEND

- ◆◆◆ BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED
- ⊥ TEMPORARY SIGN
- CHANNELIZING DEVICE @ 50' SPACING UNLESS NOTED OTHERWISE
- ➔ TRAFFIC FLOW ARROW
- [Cross-hatched] WORK AREA STAGE 2
- [Diagonal-hatched] WORK AREA STAGE 2A

NOTES: MAINTAIN ACCESS TO DRIVEWAYS AT ALL TIMES AS DIRECTED BY THE ENGINEER.
 SIGNS PLACED AT 100' SPACING. ADJUST AS NECESSARY TO FIT FIELD CONDITIONS.



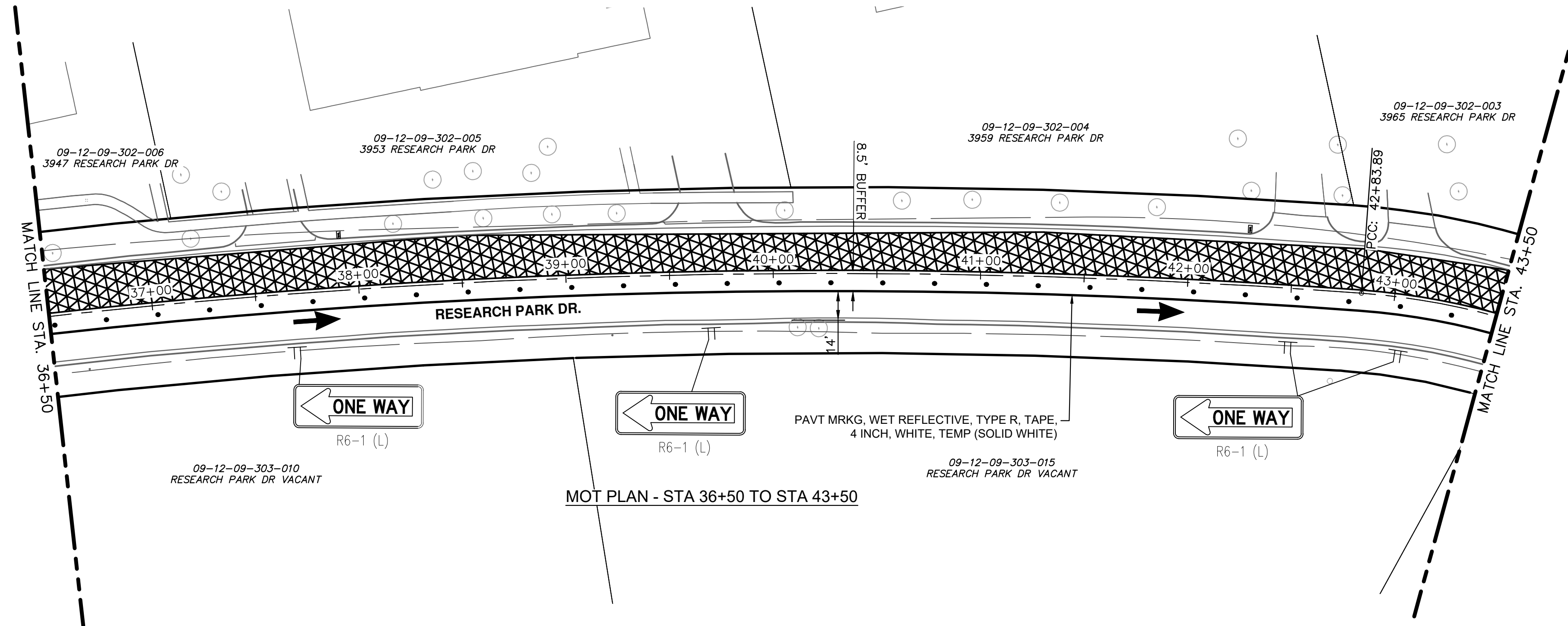
REV.	DESCRIPTION	DATE	DRAWN	CHECKED
1	ADDENDUM NO. 1	3/14/2023	JAB	DAD

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 IMPROVEMENTS PROJECT
 MAINTENANCE OF TRAFFIC ST2-2

SCALE: 1" = 40'
 DRAWING No. 2022-035-39

J:\AA\Design\AA22005-Research Park Drive\DWG\AA22005_Mtrf2.dwg Dwg Created: 7-Feb-23 - _g2 standard bw.stb - Plot Date: 14-Mar-23

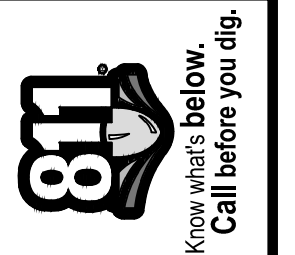
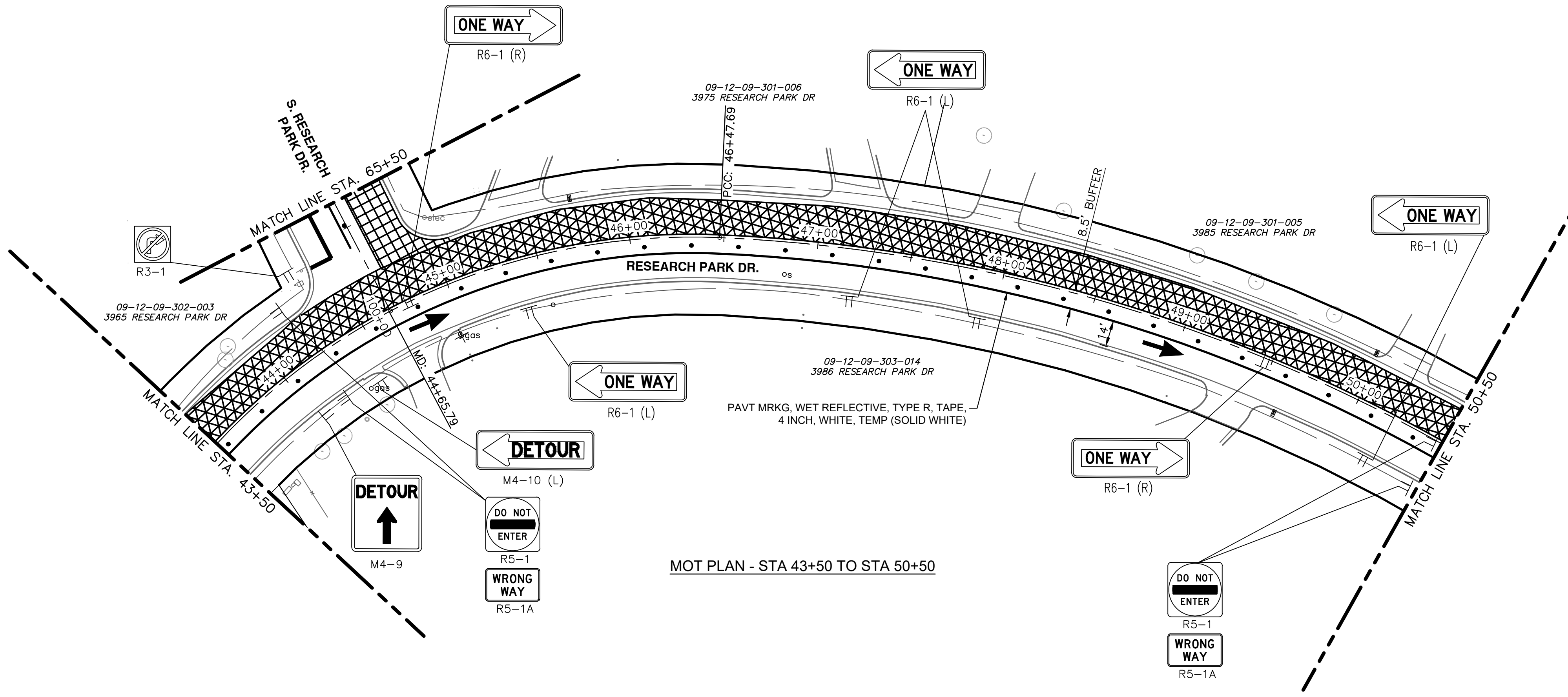


TRAFFIC CONTROL LEGEND

- ◆◆◆ BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED
- ⏏ TEMPORARY SIGN
- ... CHANNELIZING DEVICE @ 50' SPACING UNLESS NOTED OTHERWISE
- ➔ TRAFFIC FLOW ARROW
- ▨ WORK AREA STAGE 2
- ▩ WORK AREA STAGE 2A

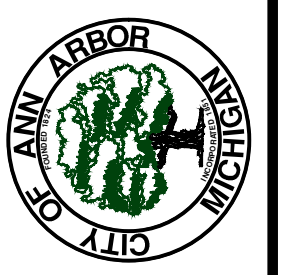
NOTES: MAINTAIN ACCESS TO DRIVEWAYS AT ALL TIMES AS DIRECTED BY THE ENGINEER.

SIGNS PLACED AT 100' SPACING. ADJUST AS NECESSARY TO FIT FIELD CONDITIONS.



REV.	DESCRIPTION	DATE	DRAWN	CHECKED
1	ADDENDUM NO. 1	3/14/2023	JAB	DAD

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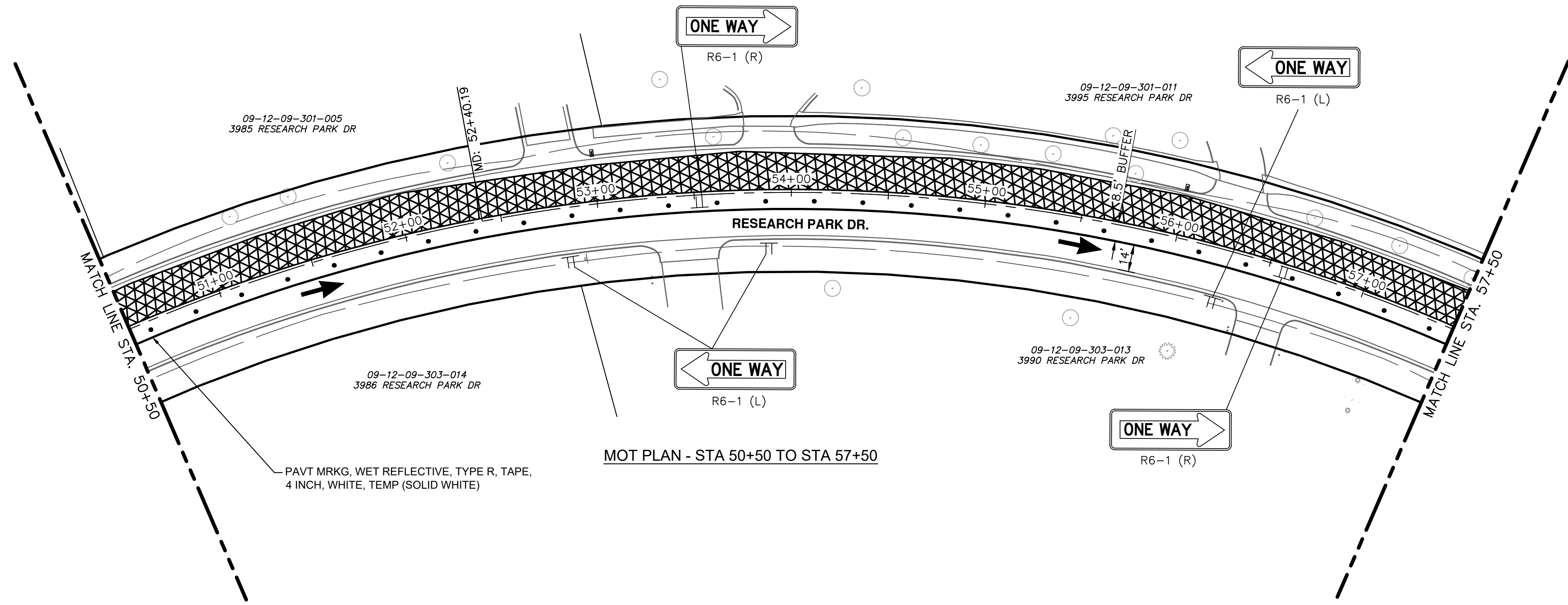


CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING
RESEARCH PARK DRIVE IMPROVEMENTS PROJECT
MAINTENANCE OF TRAFFIC ST2-3

SCALE: 1" = 40'

DRAWING No. 2022-035-40

J:\AA\Design\AA22005-Research Park Drive\DWG\AA22005_Mtrf2.dwg Dwg Created: 7-Feb-23 - _g2 standard bw.stb - Plot Date: 14-Mar-23

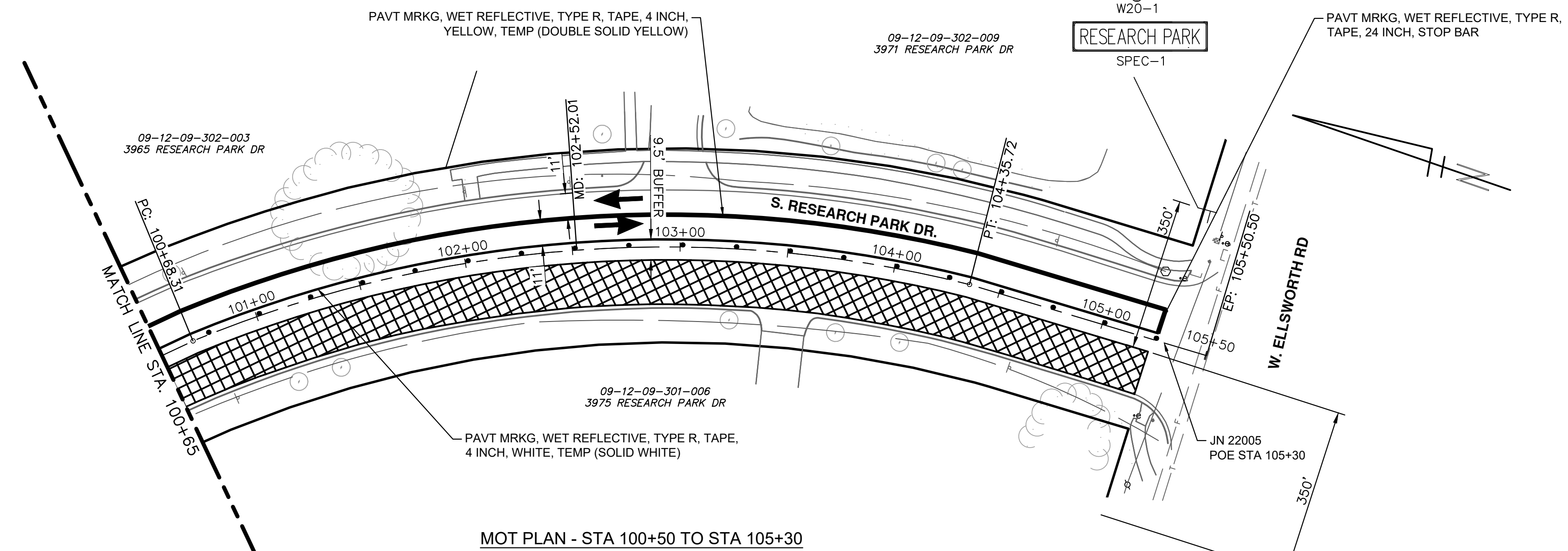


TRAFFIC CONTROL LEGEND

- ◆◆◆ BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED
- || TEMPORARY SIGN
- ... CHANNELIZING DEVICE @ 50' SPACING UNLESS NOTED OTHERWISE
- ➔ TRAFFIC FLOW ARROW
- ▨ WORK AREA STAGE 2
- ▩ WORK AREA STAGE 2A

NOTES: MAINTAIN ACCESS TO DRIVEWAYS AT ALL TIMES AS DIRECTED BY THE ENGINEER.

SIGNS PLACED AT 100' SPACING. ADJUST AS NECESSARY TO FIT FIELD CONDITIONS.



TEMPORARY TRAFFIC CONTROL SIGNS

Sign Code	Size	Area (Sft)	Total					
			Stages 1 & 1A		Stages 2 & 2A			
Quantity	Area (Sft)	Quantity	Area (Sft)	Quantity	Area (Sft)			
*D3-1	42 x 10	2.92	2	5.83	2	5.83	2	5.83
G20-2	36 x 18	4.50	1	4.50	1	4.50	1	4.50
M4-10(L)	48 x 18	6.00	0	0.00	1	6.00	1	6.00
M4-10(R)	48 x 18	6.00	2	12.00	0	0.00	2	12.00
M4-9(L)	30 x 24	5.00	0	0.00	0	0.00	0	0.00
M4-9(R)	30 x 24	5.00	1	5.00	0	0.00	1	5.00
M4-9(S)	30 x 24	5.00	2	10.00	3	20.00	3	15.00
R1-1	30 x 30	6.25	1	6.25	0	0.00	1	6.25
R2-1	24 x 30	5.00	1	5.00	1	5.00	1	5.00
R3-1	24 x 24	4.00	0	0.00	2	8.00	2	8.00
R3-2	24 x 24	4.00	1	4.00	0	0.00	1	4.00
R3-5R	30 x 36	7.50	0	0.00	0	0.00	0	0.00
R5-1	30 x 30	6.25	12	75.00	12	75.00	12	75.00
R5-1A	36 x 24	6.00	12	72.00	12	72.00	12	72.00
R5-18b	48 x 60	20.00	1	20.00	1	20.00	1	20.00
R5-18c	48 x 48	16.00	1	16.00	1	16.00	1	16.00
R6-1(L)	36 x 12	3.00	8	24.00	23	69.00	23	69.00
R6-1(R)	36 x 12	3.00	23	69.00	8	24.00	23	69.00
R11-2	48 x 30	10.00	2	20.00	2	20.00	2	20.00
W20-1	36 x 36	9.00	3	27.00	3	27.00	3	27.00
W20-3	36 x 36	9.00	1	9.00	1	9.00	1	9.00
Total			378.75		375.50		442.75	

*Sign, Type B, Temp, Prismatic, Spec

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REV.	DATE	DRAWN	CHECKED
1	3/14/2023	JAB	DAD

APPENDIX NO. 1
DESCRIPTION

CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

RESEARCH PARK DRIVE IMPROVEMENTS PROJECT

MAINTENANCE OF TRAFFIC ST2-4

SHEET No.

41 OF 41

DRAWING No.

2022-035-41