REQUEST FOR PROPOSALS

Copper Ridge Trailhead- GT Commons
Charter Township of Garfield, Grand Traverse County

Proposals Due:
10:00 AM Wednesday October 23, 2024

Address Proposals to (Signed and Sealed: Mailed and/or Delivered):

Sealed Bids will be received, by the Charter Township of Garfield, at the Township Offices located at 3848 Veterans Drive, Traverse City, MI 49684, until 10:00 AM local time on October 23, 2024, at which time the Bids received will be publicly opened and read.

Address Proposals Questions to:

Engineer

Attention: Jennifer Graham, P.E.
Gourdie-Fraser, Inc.
123 West Front Street
Traverse City, MI 49684

Phone: 231-946-5874
Facsimile: 231-946-3703
Email: jennifer@gfa.tc

Scope of Services:
We have been asked by our client, the Charter Township of Garfield to solicit this request to qualified contractors and request a proposal to construct a trailhead and connection trail spurs to facilitate improved access to the Grand Traverse Commons Natural Area. This area is comprised of 140 was dedicated to Garfield Township in the early 1990s and expanded several times since then. The park is a part of the grounds of the former State Psychiatric Hospital and is adjacent to the Village of Grand Traverse. The Copper Ridge Trailhead is located at the north end of Park Forest Drive.

The information contained below are the specific qualifications each contractor must meet in order to provide an accurate proposal.

Requirements - General:

- Work must comply with all applicable laws, regulations and specifications as identified in this RFP and on the plans.
- Contractor is responsible to obtain all local regulatory permits (including fees) including Grand Traverse County Soil Erosion Control Permit, as applicable.
- Date of completion to be within 20 days of material delivery as coordinated with the Township Engineer. Time extension for winter shutdown will be allowed.
- Final location to be coordinated with Township / Engineer and Engineer to provide construction staking.

- All work shall be coordinated with Township and their Engineer (GFA).
- Prospective bidders are strongly encouraged to conduct a site visit prior to bidding.
- Contractor shall demonstrate similar past work experience and provide three (3) references along with bid submittal. References to include scope of work completed, date and contact person.

Terms of Agreement:

General:

- To hold bid open for 60 consecutive calendar days from the bid due date
- To enter into and execute a contract with the Charter Township of Garfield.
- Provide for the services required for the complete construction of the pavilion and gravel parking areas.
- One (1) year warranty, from date of substantial completion against material defect and/or workmanship.

Insurance:

- Contractor will have Worker's Compensation Insurance in limits required by state law and Comprehensive General Liability Insurance coverage in force for all of its operations under this contract.

Bonds:

- The Contractor shall include in the proposal price the cost to provide the following:
  - Maintenance and Guarantee Bond in the amount of 50% of the proposal amount, guarantying for a period of one (1) year from final acceptance of the project work
  - Letter of Surety, licensed to do business in the State of Michigan, stating ability to obtain a Performance Bond, and Labor and Material Bond for 100% of the project amount.

Shop Drawing Submittals:

- Provide four (4) copies of material specification sheets and warranty information to Engineer. Do not proceed until written approval is received.
- Coordinate all work with the Engineer.

Services / materials to be Provided:

Contractor shall provide all equipment and materials as necessary to complete the work outlined above. They shall include, but are not limited to, the following not stated previously:

- Mobilization, demobilization and equipment
- Temporary power supply, traffic control and coordination with Township
- Placing, maintaining and the removal of temporary soil erosion control measures (as applicable)
- Clearing, Grubbing and Tree Removal including disposal of materials offsite
- Restoration (including site grading, seeding, and mulch) of all disturbed areas
- Final clean-up of the site upon completion

Contractors Proposal Form:

Bidders are instructed to submit bids for this project on a lump sum basis with adjustments for footage and materials more or less as stated in the Proposal.

All bid items are tax inclusive. All work shall be incompliance with specifications, terms identified in the RFP and applicable laws.

Item No.	Description	Unit	Estimated Quantity	Bid Unit Price	Bid Price
1	Mobilization, Max 5%	LS	1	$	$
2	Grading and Earthwork	LS	1	$	$
3	SESC including inlet protection	LS	1	$	$
4	Asphalt Removal - Parking Lot	SFT	1500	$	$
5	Proposed Parking Lot & Drives – 4EL, 220#/SYD	SYD	150	$	$
6	Proposed Path – 6' Wide	SFT	250	$	$
7	Proposed Path – 4' Wide		350	$	$
8	Aggregate Base, 22A	SYD	180	$	$
9	Curb and Gutter	LF	150	$	$
10	Retaining Wall	LF	80	$	$
11	Landscaping (Edger, weed fabric and woodchips)	LS	1	$	$
12	Pavement Striping and Sign	LS	1	$	$
13	Restoration	LS	1	$	$
				TOTAL	$

_____

Bidders Signature

_____

Printed Name:

_____

Business Name:

_____

Address:

_____

MI Contractor License No.:

_____

Telephone:

_____

Email:

Garfield Township reserves the right to accept or reject any or all proposals.

Engineering
Surveying
Testing &
Operations

123 West Front Street
Traverse City, Michigan 49684
231.946.5874
231.946.3703

TECHNICAL SPECIFICATIONS

PROJECT SPECIFICATIONS
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SECTION

SECTION 02300 - EARTHWORK

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:
   1. Drainage course for slabs-on-grade.
   2. Subbase course for concrete walks and pavements.
   3. Subbase and base course for asphalt
   4. Excavating and backfilling for utility trenches.

1.2 REFERENCES

A. MDOT – Michigan Department of Transportation "Standard Specifications for Construction"

B. ASTM - American Society of Testing Materials, latest edition.

1.3 DEFINITIONS

A. Backfill: Soil material used to fill an excavation.

   1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
   2. Final Backfill: Backfill placed over initial backfill to fill a trench.

B. Base Course: Course placed between the subbase course and hot-mix asphalt paving.

C. Bedding Course: Course placed over the excavated subgrade in a trench before laying pipe.

D. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.

E. Drainage Course: Course supporting the slab-on-grade that also minimizes upward capillary flow of pore water.

F. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.

   1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Engineer. Authorized additional excavation and replacement material will be paid for according to Contract provisions changes in the Work.
   2. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Engineer. Unauthorized excavation, as well as remedial work directed by Engineer, shall be without additional compensation.

G. Fill: Soil materials used to raise existing grades.

H. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.

I. Subbase Course: Course placed between the subgrade and base course for hot-mix asphalt pavement, or course placed between the subgrade and a cement concrete pavement or a cement concrete or hot-mix asphalt walk.

J. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below subbase, drainage fill, or topsoil materials.

K. Utilities: On-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

1.4 PROJECT CONDITIONS

A. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted in writing by Engineer and then only after arranging to provide temporary utility services.

B. Protect and preserve all public and private property including vegetation, landscape features, monuments, etc. adjacent & within work area.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations
   1. sub-base material shall meet the specifications for Class II granular material, as defined by the 2020 edition of the MDOT Standard Specifications
   2. Aggregate surface course shall meet 2020 MDOT Specifications for 22A aggregate. Compacted TO 98 percent of maximum density.

B. Unsatisfactory Soils: Uniform Soil Classification Groups GC, SC, CL, ML, OL, CH, MH, OH, and PT according to ASTM D 2487, or a combination of these groups.

   1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.

   2. Unsatisfactory soils may be used for Landscaping berms, as per plans and Section 02490.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

B. Preparation of subgrade for earthwork operations including removal of vegetation, topsoil, debris, obstructions, and deleterious materials from ground surface is specified in Division 2 Section "Site Clearing".

C. Protect and maintain erosion and sedimentation controls, which are specified on the drawings.

3.2 EXCAVATION

A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.

1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.

3.3 EXCAVATION FOR WALKS AND PAVEMENTS

A. Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades.

3.4 EXCAVATION FOR UTILITY TRENCHES

A. Excavate trenches to indicated gradients, lines, depths, and elevations.

B. Excavate trenches to uniform widths to provide the following clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches higher than top of pipe or conduit.

1. Clearance: 12 inches each side of pipe or conduit, or as indicated.

C. Trench Bottoms: Excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit. Shape subgrade to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits. Remove projecting stones and sharp objects along trench subgrade.

1. Excavate trenches 6 inches deeper than elevation required in rock or other unyielding bearing material, 4 inches deeper elsewhere, to allow for bedding course.

3.5 SUBGRADE INSPECTION

A. Proof-roll subgrade below the building slabs and pavements with heavy pneumatic-tired equipment a minimum of 2 (two) complete passes, to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.

B. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Engineer, without additional compensation.

1. Fill depressions with compacted satisfactory soils material.

2. Undercut areas not satisfactory for providing support for pavement/structure:

   a. Fill with satisfactory soil material and compact it.

3.6 STORAGE OF SOIL MATERIALS

A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.

1. Stockpile soil materials away from edge of excavations. Do not store within drip line of trees.

2. Provide Soil Erosion Control Measures around stockpiles to prevent migration offsite and erosion of the stockpiles.

3.7 UTILITY TRENCH BACKFILL

A. Place backfill on subgrades free of mud, frost, snow, or ice.

B. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.

C. Backfill trenches excavated under footings and within 18 inches of bottom of footings with satisfactory soil; fill with concrete to elevation of bottom of footings.

D. Place and compact initial backfill of satisfactory soil, free of particles larger than 1 inch in any dimension, to a height of 12 inches over the utility pipe or conduit.

1. Carefully compact initial backfill under pipe haunches and compact evenly up on both sides and along the full length of utility piping or conduit to avoid damage or displacement of piping or conduit. Coordinate backfilling with utilities testing.

E. Place and compact final backfill of satisfactory soil to final subgrade elevation.

F. Install warning tape directly above utilities, 12 inches below finished grade, except 6 inches below subgrade under pavements and slabs.

3.8 SOIL MOISTURE CONTROL

A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.

1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.

2. Remove and replace, or scarify and air dry otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

B. Moisture-Density Relationships:

1. Cohesive (clays) or granular (Sands) soils – ASTM D1557 (Modified Proctor)

3.9 COMPACTION OF SOIL BACKFILLS AND FILLS

A. Place backfill and fill soil materials in layers not more than 9 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.

B. Place backfill and fill soil materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.

C. Compact soil materials to not less than the following percentages of maximum dry density according to ASTM D 1557:

1. Under structures, building slabs, steps, and pavements, scarify and recompact top 12 inches of existing subgrade and each layer of backfill or fill soil material at 95 percent.
2. Under walkways, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 95 percent.
3. Under lawn or unpaved areas, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 85 percent.
4. For utility trenches, compact each layer of initial and final backfill soil material at 85 percent.

3.10 GRADING

A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.

B. Site Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:

1. Lawn or Unpaved Areas: Plus or minus 1 inch.
2. Walks: Plus or minus 1 inch.
3. Pavements: Plus or minus 1/2 inch.

C. Grading inside Building Lines: Finish subgrade to a tolerance of 1/2 inch when tested with a 10-foot straightedge.

3.11 SUBBASE AND BASE COURSES

A. Place subbase and base course on subgrades free of mud, frost, snow, or ice.

B. On prepared subgrade, place subbase and base course under pavements and walks as follows:

1. Shape subbase and base course to required crown elevations and cross-slope grades.
2. Compact subbase and base course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 1557.

3.12 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified independent testing agency to perform field quality-control testing.

B. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earthwork only after test results for previously completed work comply with requirements.

C. Footing Subgrade: At footing subgrades, at least one test of each soil stratum will be performed to verify design bearing capacities. Subsequent verification and approval of other footing subgrades may be based on a visual comparison of subgrade with tested subgrade when approved by Engineer.

D. Testing agency will test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM D 2922, and ASTM D 2937, as applicable.

E. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil to depth required; recompact and retest until specified compaction is obtained.

3.13 PROTECTION

A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.

C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.

1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.14 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Disposal: Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Owner's property.

END OF SECTION 02300

SECTION 02741 - ASPHALT PAVING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Hot-mix asphalt paving.

B. Related Sections:

   1. Division 2 Section "Earthwork" for aggregate subbase and base courses and for aggregate pavement shoulders.

1.2 QUALITY ASSURANCE

A. Regulatory Requirements: Comply with materials, workmanship, and other applicable requirements of the MDOT Standard Specifications for asphalt paving work.

PART 2 - PRODUCTS

2.1 MIXES

A. Hot-Mix Asphalt: Dense, hot-laid, hot-mix asphalt plant mixes approved by authorities having jurisdiction and complying with the following minimum requirements:

   Parking Lots
   1. Single Course: MDOT Mixture Type 4EL (Min. 220#/syd).

PART 3 - XECUTION

3.1 EXAMINATION

A. Proof-roll subgrade below pavements with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.

B. Proceed with paving only after unsatisfactory conditions have been corrected.

3.2 SURFACE PREPARATION

A. General: Immediately before placing asphalt materials, remove loose and deleterious material from substrate surfaces. Ensure that prepared subgrade is ready to receive paving.

3.3 HOT-MIX ASPHALT PLACING

A. Machine place hot-mix asphalt on prepared surface, spread uniformly, and strike off. Place asphalt mix by hand to areas inaccessible to equipment in a manner that prevents segregation of mix. Place each course to required grade, cross section, and thickness when compacted.

1. Spread mix at minimum temperature as given in MDOT Specifications.
2. Regulate paver machine speed to obtain smooth, continuous surface free of pulls and tears in asphalt-paving mat.

B. Place paving in consecutive strips not less than 10 feet (3 m) wide unless infill edge strips of a lesser width are required.

C. Promptly correct surface irregularities in paving course behind paver. Use suitable hand tools to remove excess material forming high spots. Fill depressions with hot-mix asphalt to prevent segregation of mix; use suitable hand tools to smooth surface.

3.4 COMPACTION

A. General: Begin compaction as soon as placed hot-mix paving will bear roller weight without excessive displacement. Compact hot-mix paving with hot, hand tampers or with vibratory-plate compactors in areas inaccessible to rollers.

1. Complete compaction before mix temperature cools to 185 deg F (85 deg C).

B. Breakdown Rolling: Complete breakdown or initial rolling immediately after rolling joints and outside edge. Examine surface immediately after breakdown rolling for indicated crown, grade, and smoothness. Correct laydown and rolling operations to comply with requirements.

C. Intermediate Rolling: Begin intermediate rolling immediately after breakdown rolling while hot-mix asphalt is still hot enough to achieve specified density. Continue rolling until hot-mix asphalt course has been uniformly compacted to the following density:

1. Average Density: 92 percent of reference maximum theoretical density according to ASTM D 2041, but not less than 90 percent nor greater than 96 percent.

D. Finish Rolling: Finish roll paved surfaces to remove roller marks while hot-mix asphalt is still warm.

E. Edge Shaping: While surface is being compacted and finished, trim edges of pavement to proper alignment. Bevel edges while asphalt is still hot; compact thoroughly.

F. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.

G. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.

3.5 ASPHALT CURBS

A. Construct hot-mix asphalt curbs over compacted pavement surfaces. Apply a light tack coat unless pavement surface is still tacky and free from dust.

1. Asphalt Mix: Same as pavement surface-course mix.

B. Place hot-mix asphalt to curb cross section indicated or, if not indicated, to local standard shapes, by machine or by hand in wood or metal forms. Tamp hand-placed materials and screed to smooth finish. Remove forms after hot-mix asphalt has cooled.

3.6 INSTALLATION TOLERANCES

A. Pavement Thickness: Compact each course to produce the thickness indicated within the following tolerances:

1. Base Course: Plus or minus 1/2 inch (13 mm).
2. Top Course: Plus 1/4 inch (6 mm), no minus.

B. Pavement Surface Smoothness: Compact each course to produce a surface smoothness within the following tolerances as determined by using a 10-foot (3-m) straightedge applied transversely or longitudinally to paved areas:

1. Base Course: 1/4 inch (6 mm)
2. Top Course: 1/8 inch (3 mm)
3. Crowned Surfaces: Test with crowned template centered and at right angle to crown. Maximum allowable variance from template is 1/4 inch (6 mm).

3.7 PAVEMENT MARKING

A. Do not apply pavement-marking paint until layout, colors, and placement have been verified with Engineer.

B. Allow paving to age for 30 days before starting pavement marking.

C. Sweep and clean surface to eliminate loose material and dust.

D. Apply paint with mechanical equipment to produce pavement markings, of dimensions indicated, with uniform, straight edges. Apply at manufacturer's recommended rates to provide a minimum wet film thickness of 15 mils (0.4 mm).

3.8 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.

B. Replace and compact hot-mix asphalt where core tests were taken.

C. Remove and replace or install additional hot-mix asphalt where test results or measurements indicate that it does not comply with specified requirements.

3.9 DISPOSAL

A. Except for material indicated to be recycled, remove excavated materials from Project site and legally dispose of them in an EPA-approved landfill.

END OF SECTION 02741

SECTION 02910 - RESTORATION AND CLEANUP

PART 1 - GENERAL

1.01 SCOPE OF WORK

Under this item, the Contractor shall restore all lawns, trees, gardens, landscape plantings, trails, fences, signs, water courses and sand, gravel, dirt, property markers (such as concrete monuments, irons, stakes, pipes, etc.), mailboxes and other items which may be damaged during the course of construction. All replacement and cleanup work will be considered incidental to the project.

All restoration work shall attempt to return the existing facilities to their original condition. Substitutions, such as gravel instead of grass, will not be allowable, unless shown on the plans.

The Contractor shall pay special attention to the requirements of Act 451, "Soil Erosion and Sedimentation Control". In all construction work the Contractor shall take all precautions necessary to prevent erosion and to conform to the requirements of Act 451. Should erosion occur within the guarantee period, regrade and reseed the disturbed area at no additional cost to the Owner.

Replacement and cleanup operations shall follow immediately behind the construction work. The Contractor shall make every effort to keep the job site clean and free of trash and miscellaneous building materials. The Contractor shall pay special attention in order to restore commercial signs, fences, etc. and to patch and repair pavement, driveways, and sidewalks immediately after the construction work. In the event that replacement and cleanup work does not proceed in a satisfactory manner, the Owner may withhold periodic payments or close the construction area until such time as the replacement and cleanup is satisfactory. An exception may be made if there are physical limitations which do not allow for immediate replacement and cleanup.

PART 2 - MATERIALS AND EXECUTION

2.01 GRASS AREA

Grass areas shall be considered as two types: open fields or ditches not adjacent to established lawns. The plans specifically call for Type 2 mixtures. If there is a question as to which mixture to use, the Engineer shall make the final decision.

Terraces, lawns, ditches, open fields and other grassy areas shall be topsoiled, fertilized, seeded and mulched in such a manner that a grass approximately equal in type and density of the original is obtained. Slopes between 1:3 and 1:2 shall be sodded and staked or receive seed with mulch blankets.

A. Topsoil: Topsoil furnished shall consist of dark brown or black loam, clay loam, silt loam, or sandy loam surface of fertile, friable humus soil of mineral origin, not including peat or muck. Soil shall be free of stones, roots, sticks and any other extraneous materials. All topsoil furnished shall be approved by the Engineer. All areas shall be topsoiled to a depth of four (4) inches.

B. Seeding and Fertilizing: Areas to be seeded and fertilized shall be carefully raked to even surfaces and all stones, sticks and other debris removed.

The area to be seeded shall be fertilized with agricultural fertilizer 12-12-12 analysis, Davco or Agrico or equal, applied on the prepared surface at the rate of 20 pounds per 1,000 square feet. Fertilizer shall be harrowed or raked into the soil to a depth of not less than one (1) inch.

Seeds shall be furnished in durable bags. On each bag of seed, the vendor shall attach a tag giving name, lot number, net weight of contents, purity and germination. All seed shall be thoroughly mixed and sown in a method which will ensure uniform distribution. Seeding during high winds or inclement weather will not be permitted. All seed is to be raked in and compacted. The seed shall be sown at the rate of five (5) pounds per 1,000 feet. The seeding mixtures shall be composed of certified seed of the purity, germination and proportions by weight as specified in the following table:

SEEDS		MIXTURES		
Kind	Minimum Purity	Minimum Germination	Type 1	Type 2
Perennial Rye Grass	98%	90%	20%	50%
Kentucky Blue Grass	90%	75%	60%	15%
Creeping Red Fescue	98%	80%	20%	35%

C. Mulching: Immediately after seeding all seeded areas, Type 2 shall be mulched with unweathered small grain straw or hay spread uniformly at a rate of 100 pounds per 100 square feet (two tons per acre).

D. Mulching Anchoring: All mulch shall be anchored using one of the following methods. The Contractor may use either method unless otherwise shown on the plans.

1. Method "A": The straw mulch shall be anchored by applying one of the following asphalt products at the rate shown. The asphalt may be blown on with the mulch or sprayed on immediately after the mulch is spread.

Asphalt Product	Application Rate
Liquid Asphalt R.C. 1, 2 or 3; M.C. 2 or 3	0.10 Gal. per S.Y.
Emulsified Asphalt R.S. 1 or 2; M.S. 2; or S.S. 1	0.04 Gal. per S.Y.

2. Method "B": A "Terra-Tak" mulch binder may be used in lieu of asphalt. Mixing and application shall be done in accordance with the manufacturer's recommendations.

3. Method "C": In areas with slopes greater than 10% or where shown on the plans, the Contractor shall place mulch netting or excelsior blanket mulch.

   a. Mulch Netting: Mulch shall be anchored by the use of mulch netting. The light weight fibrous netting shall be properly placed over the mulch and

secured to the ground using wire staples, spaced per manufacturer's recommendations.

b. Excelsior Blanket Mulch: An excelsior blanket shall be used in lieu of other mulch. The excelsior blanket shall be a consistent thickness of evenly distributed wood excelsior fibers, 80% of which are six (6) inches or more in length. The top side of the blanket shall be covered with a coarse net of twisted Kraft paper or biodegradable extruded plastic mesh. Ends and sides shall be securely butted and stapled with U-shaped wire staples of a size and length suited to the soil conditions.

2.02 DITCHES

Ditches which have been grassed and maintained shall be restored to their original shape, condition, line and grade.

Ditches in which culverts or drain tile have been installed shall have the same tile replaced, if in good condition, or a tile satisfactory to the Engineer installed in its place at the original line and grade.

Catch basins, if encountered, shall be repaired/replaced if damaged.

2.03 FENCE REPLACEMENT

A. Fences shall be replaced equal to and of the same type as existing.

B. Salvaged material, if approved by the Engineer, may be used for replacement.

2.04 SIGNS AND STRUCTURES

Signs or other structures which must be removed by the Contractor in order for work to proceed shall be replaced and reconstructed to original condition. It is very important that replacement follow immediately behind the construction work.

2.05 TREES AND SHRUBS

Existing trees and shrubs that are disturbed during construction shall be replaced at no additional cost to the contract. The size and type of replacement shall be approved by the Owner and/or Engineer prior to replacement.

2.06 OTHER DEBRIS

The Contractor shall remove, at his own expense from the site, any and all broken pipe, bricks, blocks, lumps of concrete, broken machinery, cans, containers and other trash and debris.

End of Section 02910

SECTION 03300 – CAST IN PLACE CONCRETE

PART 1 - GENERAL

1.01 DESCRIPTION

The work under this section shall include all materials, labor, and equipment necessary to achieve a finished product, including but not limited to the items in these specifications and those shown on the working drawings.

1.02 QUALITY ASSURANCE

A. Codes and Standards: All procedures and materials under this section, where not specifically stated, shall be in accordance with standards and recommendations of the American Concrete Institute's Building Code Requirements for reinforced concrete (ACI 318, latest edition).

B. Concrete Testing Service: All acceptance testing shall be performed by concrete field testing technicians certified by the American Concrete Institute. All acceptance testing shall be paid for by the Owner.

C. Concrete Quality: One set of four test cylinders shall be made for each day's placement, or every 50 cubic yards of concrete placed in a day. Samples shall be obtained according to ASTM C172 and C31 (latest edition) and tested according to ASTM C39 (latest edition). One cylinder shall be broken at seven (7) days with two (2) cylinders to be broken at the 28th day. One (1) cylinder shall be held in reserve. Concrete sampling and testing shall be performed by an independent testing company and paid for by the Owner.

D. Test Results: Will be reported in writing to the Engineer and concrete producer within 24 hours after tests are made.

PART 2 - PRODUCTS

2.01 CONCRETE MATERIALS

A. Cement: Portland Cement shall conform to "Standard Specifications for Portland Cement" (ASTM C150 - latest edition), or "Specifications for Air-Entrained Portland Cement" (ASTM C175 - latest edition) and shall be Types I, III, or IIIa.

B. Aggregates: Concrete aggregates shall conform to "Standard Specifications for Concrete Aggregates" (ASTM C33 - latest edition). Fine aggregate shall be clean, sharp, natural sand free from loam, clay, or lumps or other deleterious substances. Coarse aggregate shall be clean, uncoated, processed aggregate containing no clay, mud, loam, or foreign matter. Coarse aggregate shall be washed gravel either natural or crushed. Use of pit or bank-run gravel is not permitted. Maximum coarse aggregate size for all members less than eight (8) inches in thickness shall be three quarters of an inch (⅓"). For members with thicknesses greater than or equal to eight (8) inches, the maximum coarse aggregate size shall be one and one half inches (1-½").

C. Mixing Water: All water used in concrete shall be from a potable water.

D. Admixtures: Air-entraining admixtures shall conform to "Standard Specifications for Air-Entrained Admixtures for Concrete" (ASTM C260 -latest edition).

2.02 REINFORCEMENT MATERIALS

A. Reinforcement Bars: All reinforcing bars shall be deformed, grade 60 as defined by: (ASTM A615, A616, or A617 - latest editions).

B. Welded Wire Fabric: Welded wire fabric for concrete reinforcement shall conform to: (ASTM A185 - latest edition).

C. Before fabrication or placement of any reinforcing steel, the Contractor shall submit to the Engineer for approval six (6) sets of shop drawings showing in detail all methods of placement, size, lengths, bends and quantity of bars which will be required. The drawings shall be approved in writing by the Contracting Officer within ten (10) working days of receiving such. The Contractor shall not fabricate or place any reinforcing steel until this approval is obtained.

2.03 BITUMINOUS JOINT FILLER

Resilient, non-extruding type premolded bituminous composition, complying with ASTM D944, AASHTO M33, and FS HH-F-341, Type III.

2.04 CONCRETE MIX DESIGN

A. Proportion mixes by either laboratory trial batch or field experience method, complying with ACI 211.1 and Act 301.

1. Submit written reports of each proposed mix for each class of concrete to Engineer at least thirty (30) days prior to start of work. Do not begin concrete production until mixes have been reviewed by the Engineer.

2. Mix designs may be adjusted when material characteristics, job conditions, weather, test results or other circumstances warrant. Do not use revised concrete mixes until submitted to and reviewed by the Engineer.

B. Use air-entraining admixture in all concrete which will be exposed to freezing and thawing, providing not less than 5% nor more than 7% entrained air, and from 2% to 4% for other concrete.

C. Design the mix to produce standard-weight concrete consisting of portland cement, aggregate, water and specified admixture to produce the following properties:

1. Compressive Strength:
   a. Sidewalks and curbs: 4,000 psi minimum at 28 days.
   b. Concrete pads: 4000 psi minimum at 28 days

2. Slump Range:
   a. 1" to 3" for reinforced foundation systems; 1" to 4" for all other concrete.

3. Water Cement Ratio:
   a. The maximum water-cement ratio shall be in accordance with ACI 301 except as follows:
      1) For thin sections (railings, curbs, sills, ledges, ornamental work) and sections with less than one inch (1") cover over steel, maximum water-cement ratio for severe weathering area shall be 0.45.
      2) For all other structures in severe weathering areas, maximum water-cement ratio shall be 0.50.

PART 3 - EXECUTION

3.01 FORMING, MIXING, AND PLACING CONCRETE

A. Preparation of Equipment and Place of Deposit

1. Before placement, all equipment for mixing and transporting the concrete shall be cleaned, and all debris and ice shall be removed from the places to be occupied by the concrete. Forms shall be thoroughly wetted (except in freezing weather) or oiled, and masonry filler units that will be in contact with concrete shall be well drenched (except in freezing weather). The reinforcement shall be thoroughly cleaned of ice, dirt, loose rust and mill scale, or other coatings.

2. Water shall be removed from place of deposit before concrete is placed unless otherwise permitted by the Engineer. All latents and other unsound material shall be removed from hardened concrete before additional concrete is added.

B. Mixing

1. Ready mixed concrete shall be mixed and delivered in accordance with "Standard Specification for Ready Mixed Concrete (ASTM C94 - latest edition). Mixing and transporting equipment shall be capable of providing concrete which meets the ASTM C94 requirements for uniformity.

2. For job mixed concrete, the mixer shall be rotated at a speed recommended by the manufacturer. If mixer performance tests are not made, each batch of one cubic yard (1 cy) or less shall be mixed for at least 1 minute after all materials are in the mixer. The mixing time shall be increased 15 seconds for each additional cubic yard or fraction thereof. The entire batch shall be discharged before the mixer is recharged.

C. Conveying

1. Concrete shall be conveyed from the mixer to the place of final deposit by methods that will prevent separation or loss of materials.

2. Equipment for chuting, pumping, and pneumatically conveying concrete shall be of such size and design as to ensure a practically continuous flow of concrete at the delivery end without separation of materials practically continuous flow of concrete at the delivery end without separation of materials.

D. Placing

1. Concrete shall be deposited as nearly as practicable in its final position to avoid segregation due to rehandling or flowing. Concrete shall be placed at such a rate that it is at all times plastic and flows readily between bars. No concrete contaminated by foreign material shall be used, nor shall retempered concrete be used unless approved by the Engineer.

2. When placing is started, it shall be carried on as a continuous operation until placement of the panel or section is completed. When construction joints are necessary, they shall be made in accordance with Article H-7: Construction Joints.

3. All concrete shall be thoroughly consolidated during placement. It shall be thoroughly worked around reinforcement and embedded fixtures and into the corners of the forms.

E. Curing

1. Concrete shall be kept moist for at least 5 days after placement. High-early-strength concretes, however, shall be kept moist for at least the first 2 days when concrete and air temperatures are above 50 F.; longer periods of curing shall be required when temperatures are below 50 F. If provisions are made for sufficient damp curing of the concrete to develop compressive strengths equal to those of Types I (Normal) and Ia, Portland-type cements that conform to "Standard Specifications for Blended Hydraulic Cements" (ASTM C595 - latest edition) may be used.

2. In lieu of keeping the surface of slabs continually wet, the Contractor may elect to use a chemical curing and hardening compound such as "Demicon Cure-Hard", "One-Kote" or equal, providing the surfaces are treated in strict accordance with the manufacturer's stated directions.

F. Cold-Weather Requirements

1. Adequate equipment shall be provided for heating concrete materials and protecting concrete during freezing or near-freezing weather. No frozen materials or materials containing snow or ice shall be used.

2. All reinforcement, forms, fillers, and ground with which the concrete is to come in contact shall be free from snow and ice. All concrete placed in forms shall have a temperature of 50 F or higher after placement. Adequate means shall be provided for maintaining this temperature for three (3) days. When high-early-strength concrete is used, a temperature of at least 50 F shall be maintained for two (2) days. In either case, additional time necessary to ensure proper curing of the concrete shall be provided as directed by the Engineer. The housing, covering, or other protection used in curing shall remain intact at least 24 hours after artificial heating is discontinued. No dependence shall be placed on salt or other chemicals for the prevention of freezing.

G. Hot-Weather Requirements

1. In hot weather, suitable precautions shall be taken to avoid drying of the concrete prior to finishing operations. Use of windbreaks, sunshades, fog sprays, or other devices shall be provided as directed by the Engineer.

2. Concrete deposited in hot weather shall not have a placing temperature that will cause difficulty from loss of slump, flash set, or cold joints. Concrete temperature shall be maintained at less than 90 F unless higher temperatures are permitted by the Engineer.

H. Forms and Details of Construction

1. Forms shall conform to shapes, lines, and dimensions of the members as called for on the plans, and shall be sufficiently tight to prevent leakage of mortar. They shall be properly braced or tied together so as to maintain position and shape.

2. Removal of Forms: Forms shall be removed in such a manner as to ensure the complete safety of the structure. In no case shall supporting forms or shoring be removed until members have acquired sufficient strength to support their weight and imposed loads safety.

3. Cleaning and Bending Reinforcement: At the time concrete is placed, metal reinforcement shall be free from loose, thick rust, mill scale, or other coatings that will destroy or reduce the bond. All bars shall be bent cold, unless otherwise permitted by the Contracting Officer. No bars partially embedded in concrete shall be field bent except as shown on the plans or as specifically permitted by the Engineer.

4. Placing Reinforcement: Metal reinforcement shall be accurately placed according to the plans and adequately secured in position by concrete, metal, or other approved chairs, spaces, or ties.

5. Splices in Reinforcement: No splices in reinforcement shall be made except as shown on the plans, or as specified, or as authorized by the Engineer. All welding shall conform to the American Welding Society's "Reinforcing Steel Welding Code" (AWS D12.1 - latest edition), unless authorized by the Engineer.

6. Concrete Protection for Reinforcement

a. Reinforcement shall be protected by the thickness of concrete indicated in the plans. Where not otherwise shown, the thickness of concrete over the reinforcement shall be as follows:

1) Where concrete is deposited against the ground without the use of forms - not less than three inches (3").

2) Where concrete is exposed to weather or ground but placed in forms - not less than two inches (2") for bars larger than No. 5 and one and one half inches (1½") for No. 5 bars or smaller.

3) In slabs and walls not exposed to ground or weather - not less than three quarters of an inch (¾").

4) In beams, girders, and columns not exposed to ground or weather - not less than one and one half inches (1½").

5) In all cases, at least equal to the diameter of the bars.

b. Exposed reinforcing bars intended for bonding with future extensions shall be protected from corrosion by concrete or other adequate covering.

7. Joints

a. Construction Joints: Locate and install construction joints as indicated or, if not indicated, locate so as not to impair strength and appearance of the structure, as acceptable to Architect.

b. Provide Keyways at least one and one half inches (1½") deep in construction joints in walls, slabs, and between walls and footings; accepted bulkheads designed for this purpose may be used for slabs.

c. Place construction joints perpendicular to main reinforcement. Continue reinforcement across construction joints.

d. Waterstops: Provide waterstops in construction joints as indicated. Install waterstops to form continuous diaphragm in each joint. Make provisions to support and protect exposed waterstops during progress of work. Fabricate field joints in waterstops in accordance with manufacturer's printed instructions.

e. Contraction (Control) Joints in Slabs-on-Ground: Construct contraction joints in slabs-on-ground to form panels of patterns as shown. Use inserts 1/8" to 1/4" wide x 1/4 of slab depth, unless otherwise indicated.

Contraction joints may be formed by saw cuts as soon as possible after slab finishing as may be safely done without dislodging aggregate.

3.02 CONCRETE FINISHES

A. Surface Treatment After Removal of Forms: Immediately following the removal of forms, all form ties shall be cut off at a depth of at least one half of an inch (½") beneath the surface of the concrete. The resulting holes shall be pointed up with cement mortar. Any undesirable fins or other project-ions on the surface shall be carefully removed and offsets leveled. Honeycombed or damaged places shall be immediately saturated with water and repaired by filling with a concrete or mortar of the same composition as was used in the surface. After making the necessary repairs, the surface shall be finished with a wood float so as to be free from streaks, discolorations or other imperfections. Plastering will not be permitted. The use of a steel trowel to finish surfaces will likewise not be permitted.

B. Finish of Exposed Concrete Surfaces: Where shown on drawings, when exposed to view in the completed work, shall be finished in the following manner: All work set forth in the paragraph immediately above shall first be done. Oil and rust stains shall be completely removed from all exposed surfaces. After the defects have been repaired, dampen surface and apply Thoroseal at a rate of 2 lbs. per square yard minimum with tampico fiber brush or sponge to achieve a uniform finish. Color used shall be white. Thoroseal shall be mixed to a batter consistency and must not be applied in temperature below 40 F or when temperature is expected to fall below 40 F within 24 hours.

C. Slab Finishes: Interior concrete slabs shall have a steel trowel finish. Exterior sidewalks shall have a lightly broomed finish perpendicular to the direction of traffic. Finishing shall be performed only in accordance with the provisions of ACI 302, "Recommended Practice for Concrete Floor and Slab Construction".

3.03 PLACING CONDUIT, PIPES, ETC.

A. Placement: All conduit, pipes, ducts and similar items shall be placed so as not to weaken the construction. The Contractor shall call the Engineer's attention to any such interference; failing in this, the Contractor shall replace at his own expense any concrete ordered removed to remedy the weakness.

End of Section 03300

PLANS PREPARED FOR:

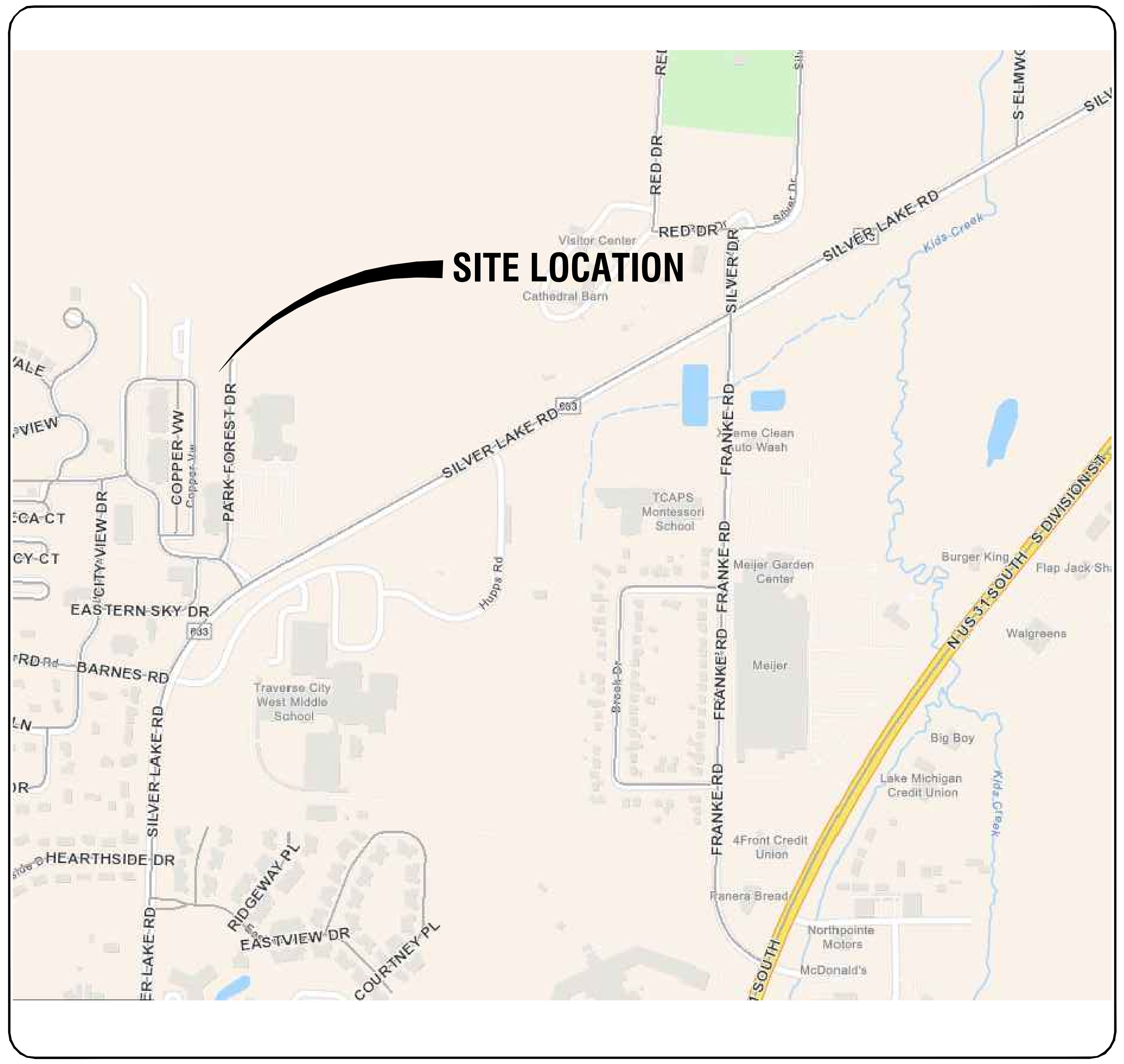
GARFIELD TOWNSHIP

COPPER RIDGE TRAIL HEAD IMPROVEMENTS

CLIENT / AGENCY

GARFIELD TOWNSHIP
3848 VETERANS DRIVE
TRAVERSE CITY, MI 49684
231-941-1620

SHEET INDEX



LOCATION MAP

GARFIELD TOWNSHIP, GRAND TRAVERSE COUNTY, MICHIGAN
NOT TO SCALE

ENGINEER

ENGINEERING
SURVEYING
TESTING & OPERATIONS

123 West Front Street
Traverse City, MI 49684

http://gfa.tc
231.946.5874 (p)
231.946.3703 (f)

ISSUED: 09-23-2024
(FOR CONSTRUCTION)

Know what's below. Call before you dig.

PUBLIC AGENCIES AND UTILITIES

PUBLIC AGENCIES

CHARTER TOWNSHIP OF GARFIELD
Telephone: 231.941.1620

GRAND TRAVERSE COUNTY D.P.W.
Telephone: 231.922.4896

GRAND TRAVERSE COUNTY ROAD COMMISSION
Telephone: 231.922.4848

GRAND TRAVERSE COUNTY SOIL EROSION SEDIMENTATION CONTROL DEPT.
Telephone: 231.995.6042

GRAND TRAVERSE COUNTY DRAIN COMMISSION
Telephone: 231.922.4807

MICHIGAN DEPARTMENT OF TRANSPORTATION (M.D.O.T.)
Telephone: 231.941.1986

UTILITY AGENCIES

CHERRYLAND ELECTRIC COOPERATIVE
Telephone: 231.943.8377

CONSUMERS ENERGY
Telephone: 231.929.6242

TRAVERSE CITY LIGHT & POWER
Telephone: 231.922.4942

DTE ENERGY
Telephone: 231.592.3244

CHARTER COMMUNICATIONS
Telephone: 231.929.7012

AT&T MICHIGAN
Telephone: 231.941.2707

EMERGENCY SERVICES

EMERGENCY CALLS
911

EMERGENCY AMBULANCE SERVICE
911

POLICE AGENCIES
EMERGENCY SERVICE: **911**
City of Traverse City: Telephone: 231.941.2300
Grand Traverse County Sheriff: Telephone: 231.941.2225
Michigan State Police: Telephone: 231.946.4646

FIRE DEPARTMENTS
EMERGENCY SERVICE: **911**
City of Traverse City: Telephone: 231.941.2340
Grand Traverse County: Telephone: 231.941.2238

MISS DIG
Telephone: 1.800.482.7171

GARFIELD TOWNSHIP : COPPER RIDGE TRAIL HEAD IMPROVEMENTS

GFA JOB# 24236

SHEET # C1.0

GENERAL NOTES

1. ALL ELEVATIONS ARE BASED ON NAVD88 DATUM.
2. SPECIAL CARE SHALL BE TAKEN IN EXCAVATING IN THE PROXIMITY OF ALL UNDERGROUND UTILITIES. THE CONTRACTOR SHALL SECURE ASSISTANCE FROM THE APPROPRIATE UTILITY COMPANY IN LOCATING ITS LINES. THE CONTRACTOR SHALL ALSO: PROVIDE SUPPORT FOR ANY UTILITY WITHIN THE EXCAVATION, PROVIDE PROPER COMPACTION UNDER ANY UNDERMINED UTILITY STRUCTURE AND, IF NECESSARY, INSTALL TEMPORARY SHEETING OR USE A TRENCH BOX TO MINIMIZE THE EXCAVATION. THE CONTRACTOR SHALL PROTECT AND SAVE HARMLESS FROM DAMAGE ALL UTILITIES, WHETHER PRIVATELY OR PUBLICLY OWNED, ABOVE OR BELOW GROUND SURFACE, WHICH MAY BE ENCOUNTERED DURING CONSTRUCTION, AT NO ADDITIONAL COST TO THE OWNER.
3. THE LOCATION OF EXISTING PUBLIC UTILITIES AND UNDERGROUND STRUCTURES SUCH AS PIPE LINES, ELECTRIC CONDUITS, SEWERS AND WATER LINES, OF RECORD ARE SHOWN ON THE PLANS. THE INFORMATION SHOWN IS BELIEVED TO BE REASONABLY CORRECT AND COMPLETE. HOWEVER, NEITHER THE CORRECTNESS NOR THE COMPLETENESS OF SUCH INFORMATION IS GUARANTEED. PRIOR TO THE START OF ANY OPERATIONS IN THE VICINITY OF ANY UTILITIES, THE CONTRACTOR SHALL NOTIFY THE UTILITY COMPANIES AND MISS DIG AND REQUEST THAT THEY STAKE OUT THE LOCATIONS OF THE UTILITIES IN QUESTION. THE CONTRACTOR SHALL COORDINATE THE RELOCATION OF ANY UTILITIES WITH THE UTILITY PROVIDER. COST OF REPAIR FOR ANY DAMAGED UTILITY LINES THAT IS PROPERLY STAKED SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
4. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE LAWS AND REGULATIONS GOVERNING THE FURNISHING AND USE OF SAFEGUARDS, SAFETY DEVICES AND PROTECTION EQUIPMENT. THE CONTRACTOR SHALL TAKE ANY NECESSARY PRECAUTIONS TO PROTECT THE LIFE AND HEALTH OF EMPLOYEES AND THE PUBLIC IN THE PERFORMANCE OF THE WORK.
5. FOR PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMANCE WITH PUBLIC ACT 53, 1974, THE CONTRACTOR SHALL DIAL 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 PART OF THE "MISS DIG" ALERT SYSTEM.
6. CONTRACTOR IS RESPONSIBLE TO FIELD VERIFY EXISTING CONDITIONS PRIOR TO PERFORMING ANY WORK.
7. EXISTING PROPERTY CORNERS ARE IDENTIFIED ON THE PLANS. IF A PROPERTY CORNER IS DISTURBED DURING CONSTRUCTION IT SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE BY A PROFESSIONAL LAND SURVEYOR.
8. CONTRACTOR SHALL PROVIDE TEMPORARY SUPPORT TO ANY MAILBOXES DISTURBED DURING CONSTRUCTION AND SHALL NOT INTERFERE WITH MAIL SERVICE. ALL DISTURBED MAILBOXES SHALL BE PLACED IN ORIGINAL LOCATION AND AT AN ELEVATION DETERMINED BY THE POSTAL SERVICE.
9. LOCAL TRAFFIC SHALL BE MAINTAINED AT ALL TIMES.
10. CONTRACTOR SHALL RESTORE ALL LAWNS, LANDSCAPE PLANTINGS, SIDEWALKS, COMMERCIAL SIGNS, ETC., AS REQUIRED AT NO ADDITIONAL COST TO THE OWNER.
11. CONTRACTOR SHALL PROVIDE ADEQUATE SUPPORT FOR UTILITY POLES AS NECESSARY. CONTRACTOR SHALL CONSULT WITH THE UTILITY COMPANY PRIOR TO ANY DISTURBANCE OF UTILITY POLE OR ANCHORING SYSTEM.

PAVING AND GRADING NOTES

1. EXPANSION JOINT FILLER, SAWED & SEALED CONTRACTION JOINTS AND HOOK-BOLTS SHALL BE INCLUDED IN THE CONCRETE PAVEMENT.
2. CONCRETE FOR THIS PROJECT SHALL MEET THE REQUIREMENTS OF MDOT P1, 6 SACK MIX. AIR ENTRAINMENT SHALL BE 5%-7%. NO ADDITIONAL ADMIXTURES SHALL BE ALLOWED UNLESS SPECIFICALLY APPROVED BY THE ENGINEER.
3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT THE PLACED CONCRETE FROM VANDALISM, TRAFFIC, OTHER MARKINGS OR DAMAGE. CONTRACTOR SHALL TAKE SUCH PRECAUTIONS AS ARE NECESSARY TO PROTECT THE CONCRETE FROM DAMAGE CAUSED BY RAIN. IF CONCRETE IS BEING POURED WHEN RAIN COMMENCES, THE CONTRACTOR SHALL STOP POURING IMMEDIATELY AND COVER ALL CONCRETE PLACED DURING THAT WORKING DAY.
4. CONSTRUCT SIDEWALK RAMPS AND CURB RAMP OPENINGS PER MDOT STANDARDS R-28-J.
5. WHERE ENCOUNTERED IN THE FIELD, UNDERCUT UNSUITABLE AREAS A MINIMUM OF 12 INCHES AND REPLACE WITH 1"X3" CRUSHED CONCRETE ON GEOTEXTILE SEPERATOR IN ACCORDANCE WITH SECTION 910 OF THE MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION, 2012 EDITION.
6. EARTH WORK CONTRACTOR SHALL BACKFILL ALL LANDSCAPE AREAS TO 2" OF PROPOSED FINISHED GRADE.
7. ALL CONCRETE JOINTS ARE TO BE TOOLED.
8. DAMAGED CONCRETE OR ASPHALT NOT CALLED FOR REMOVAL WILL BE REMOVED AND REPLACED AT NO COST TO THE OWNER. EPOXY OR OTHER PATCHING METHODS WILL NOT BE ACCEPTED AS A MEANS OF CORRECTION OF THE DAMAGED CONCRETE OR ASPHALT.

CONSTRUCTION NOTES

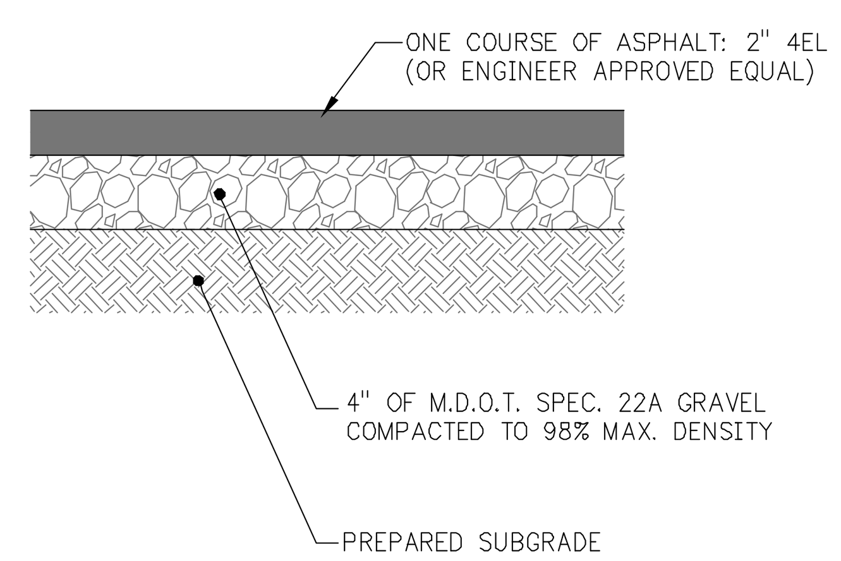
1. ALL WORK TO BE PERFORMED INCLUDING FACILITY ACCESS AND EQUIPMENT STORAGE SHALL BE COORDINATED WITH TOWNSHIP .
2. CONTRACTOR SHALL SUBMIT A CONSTRUCTION SCHEDULE TO THE OWNER FOR APPROVAL PRIOR TO BEGINNING WORK.
3. THE CONTRACTOR SHALL PROPERLY SECURE THE SITE DAILY WITHIN THE VICINITY OF THE PROPOSED WORK TO ENSURE SAFETY OF THE PUBLIC AND ACCESS IS PROHIBITED.
4. ALL WORK SHALL BE PERFORMED WITH THE CONFINES OF PROPERTY OWNED BY THE TOWNSHIP.
5. ALL LOCATIONS FOR STORAGE/MOBILIZATION/STAGING SHALL BE COORDINATED W/TOWNSHIP PRIOR TO BEGINNING WORK.

GENERAL DEMOLITION NOTES

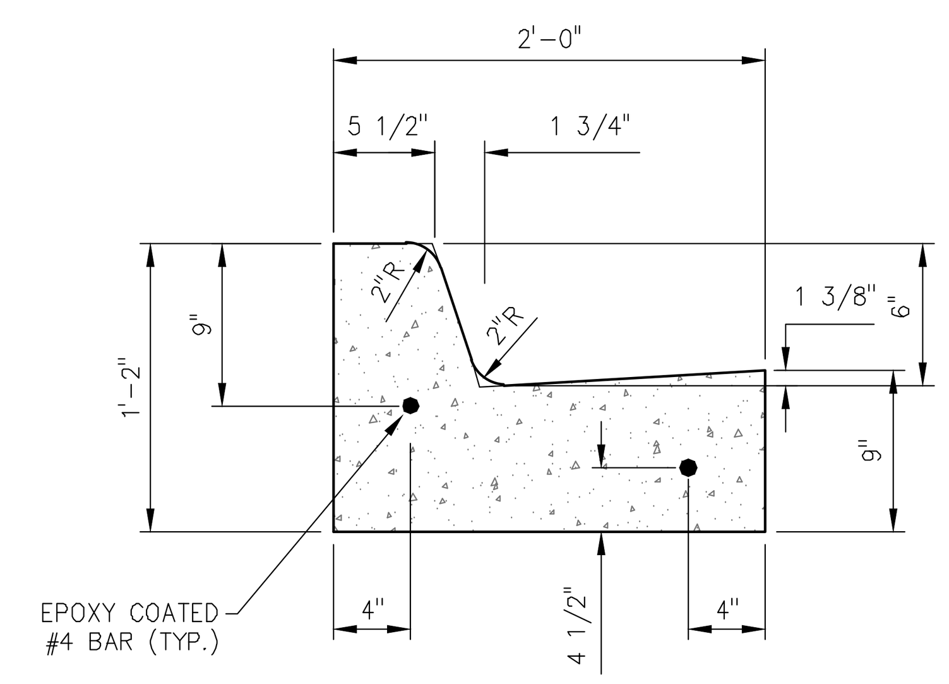
1. CONSTRUCTION ACCESS ROUTES AND PROGRESS SCHEDULES SHALL BE REVIEWED AND COORDINATED WITH THE OWNER AND/OR ENGINEER PRIOR TO THE START OF ANY WORK ON SITE.
2. SPECIFIC DEMOLITION ITEMS HAVE BEEN INDICATED ON THE PLAN AS A GUIDE TO THE GENERAL SCOPE OF THE WORK. IT IS THE INTENT THAT THESE ITEMS WILL BE COMPLETELY REMOVED, ABOVE AND BELOW GROUND, UNLESS SPECIFICALLY NOTED OTHERWISE AND THAT DEMOLITION WILL INCLUDE, BUT NOT NECESSARILY BE LIMITED TO, THESE ITEMS.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEAN UP, NOISE AND DUST CONTROL AND TRAFFIC CONTROL IN ACCORDANCE WITH THE LOCAL CODES.
4. ALL MATERIAL TO BE DEMOLISHED SHALL BE REMOVED FROM SITE AND DISPOSED OF OFF-SITE IN A LEGAL MANNER. NO ON-SITE BURY OR BURN PITS ARE ALLOWED.
5. ALL BACKFILL WITHIN PAVEMENT LIMITS SHALL BE M.D.O.T. CLASS II SAND COMPACTED TO 95% UNIT WEIGHT PER ASTM D-1557 (STANDARD PROCTOR). EXCAVATED AREAS SHALL BE BACKFILLED AT INTERVALS OF 12 INCH LIFTS (MAX.).
6. THE REMOVAL OF TREES AND SHRUBBERY SHALL BE COMPLETED IN ACCORDANCE WITH SECTION 202 OF THE 2012 M.D.O.T. STANDARD SPECIFICATIONS FOR CONSTRUCTION. THIS ITEM OF WORK SHALL ALSO INCLUDE THE COMPLETE REMOVAL OF THE TREE STUMP. THE VOID LEFT FROM THE REMOVED STUMP SHALL BE FILLED WITH GRANULAR MATERIAL CLASS II AND COMPACTED TO 95% OF ITS MAXIMUM UNIT WEIGHT.
7. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO AVOID DAMAGE TO THE EXISTING UNDERGROUND ELECTRICAL CONDUITS. THE EXACT LOCATION AND ELEVATION OF THE ELECTRICAL CONDUITS IS UNKNOWN. THE CONTRACTOR SHALL FIELD VERIFY PRIOR TO CONSTRUCTION.
8. PAVEMENT SHALL BE SAWCUT TO FULL DEPTH AND REMOVED TO AN EXISTING JOINT OR AS DIRECTED BY THE FIELD ENGINEER. WHERE SHOWN ON THE PLAN, SAWCUT PAVEMENT TWICE 12" APART. INITIAL REMOVAL SHALL BE TO FIRST SAWCUT. REMOVE PAVEMENT TO SECOND SAWCUT PRIOR TO PAVING.
9. ALL DEMOLITION, REMOVAL AND SALVAGING SHALL BE BY THE CONTRACTOR UNLESS OTHERWISE NOTED.
10. TREES NOT IDENTIFIED FOR REMOVAL SHALL BE PROTECTED BY THE CONTRACTOR DURING CONSTRUCTION.

SOIL EROSION AND STORM WATER CONTROL NOTES

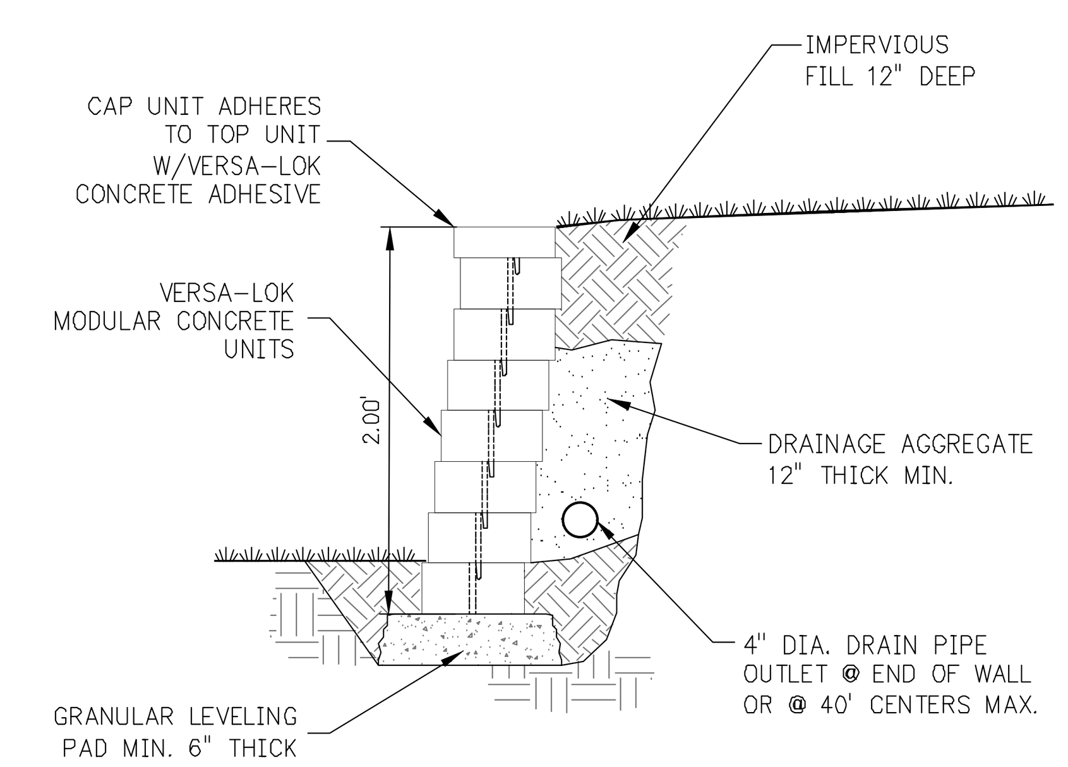
1. THE CONTRACTOR IS ADVISED THAT ALL SOIL EROSION MEASURES AND STORM WATER FACILITIES SHALL BE CONSTRUCTED AT THE EARLIEST FEASIBLE SCHEDULE. NO OTHER CONSTRUCTION ACTIVITIES SHALL PROCEED WHICH DO NOT PHYSICALLY DRAIN TO THESE FACILITIES UNLESS ADDITIONAL TEMPORARY FACILITIES ARE INSTALLED. PRIOR TO ACCEPTANCE OF THE PROJECT AS COMPLETE, ALL PERMANENT STORM WATER FACILITIES USED DURING CONSTRUCTION SHALL BE RESTORED TO OPERATE IN THEIR DESIGNED CONDITION AT NO ADDITIONAL COST TO THE PROJECT.
2. THE CONTRACTOR SHALL PROVIDE TEMPORARY SOIL EROSION CONTROL MEASURES PER P.A. 451 AS AMENDED. WITH THE USE OF SILT FENCE AND OTHER TEMPORARY MEASURES THE CONTRACTOR SHALL PROTECT THE ADJACENT AREA FROM ACCELERATED EROSION AND SEDIMENTATION FLOWS RESULTING FROM CONSTRUCTION. THE CONTRACTOR SHALL INSTALL ADDITIONAL TEMPORARY AND PERMANENT SOIL EROSION CONTROL MEASURES, IF DIRECTED BY THE ENGINEER OR SOIL EROSION CONTROL OFFICER, AT NO ADDITIONAL COST TO THE PROJECT
3. INSTALLATION AND MAINTENANCE OF TEMPORARY SOIL EROSION CONTROL MEASURES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
4. SHOULD ADDITIONAL SOIL EROSION CONTROL MEASURES BE DETERMINED TO BE NECESSARY BY EITHER THE SOIL EROSION CONTROL OFFICER OR THE OWNER'S ENGINEER THEY SHALL BE IN PLACE NO LATER THAN 24 HOURS FROM THE TIME OF NOTIFICATION TO THE GENERAL CONTRACTOR FOR THE PROJECT. IF NOT PLACED IN 24 HOURS OR LESS ALL ON SITE CONSTRUCTION WILL BE HALTED UNTIL SUCH MEASURES ARE INSTALLED AND APPROVED BY EITHER THE SOIL EROSION CONTROL OFFICER OR THE OWNER'S ENGINEER.
5. ALL DISTURBED NON-HARD SURFACE AREAS UNLESS IDENTIFIED OTHERWISE ON THE PLANS SHALL BE STABILIZED WITH TOPSOIL, SEEDED, FERTILIZED AND MULCHED. DISTURBED AREAS SHALL BE TOP SOILED TO A DEPTH NOT LESS THAN FOUR (4) INCHES. SLOPES WHICH ARE BETWEEN 3:1 AND 2:1 GRADE SHALL BE SODDED AND STAKED OR RECEIVE SEEDING IN COMBINATION WITH DOUBLE NET, BIODEGRADABLE EROSION CONTROL BLANKET (EXCEL CS-3 OR EQUAL). IN NO CASE SHALL CONSTRUCTED SLOPES IN EXCESS OF 1-1/2:1 BE ALLOWED ON THE PROJECT. CONSTRUCTED SLOPES SHALL NOT EXCEED 2:1 UNLESS SPECIFICALLY APPROVED BY THE ENGINEER, IN WHICH CASE, SLOPES BETWEEN 2:1 AND 1-1/2:1 GRADE SHALL RECEIVE SEEDING IN COMBINATION WITH DOUBLE NET, BIODEGRADABLE EROSION CONTROL BLANKET (EXCEL CC-4 OR EQUAL). ALL SLOPES GREATER THAN 3:1 GRADE AND SUBJECT TO CONCENTRATED FLOWS SHALL RECEIVE PERMANENT TURF REINFORCING MATTING (EXCEL PP5-10 OR EQUAL). INSTALLATION OF EROSION CONTROL BLANKETS AND TURF REINFORCING MATS SHALL BE PER MANUFACTURER'S INSTRUCTIONS. STORM WATER CHANNELS AND BASINS SHALL BE TREATED ACCORDING TO THE DESIGNATION ON THE PLANS AND DETAILS.
6. CONTRACTOR SHALL STABILIZE DISTURBED EARTH IMMEDIATELY UPON ESTABLISHMENT OF FINAL GRADE AND SHALL BE SOLELY RESPONSIBLE FOR ESTABLISHMENT OF A HEALTHY STAND OF GRASS PRIOR TO THE ONSET OF COLD WEATHER.
8. ANNUAL INSPECTIONS OF THE DETENTION BASINS SHALL BE COMPLETED TO VERIFY BASINS ARE FUNCTIONING PROPERLY AND REGULAR MAINTENANCE (MOWING, SEDIMENT REMOVAL, ECT.) SHALL OCCUR. NO ALTERATION MAY BE PERFORMED ON THE BASIN WITHOUT ENGINEERING APPROVAL ONCE THE BASIN HAS BEEN ACCEPTED AS CORRECTLY BUILT BY THE DESIGN ENGINEER.
9. ALL UTILITIES UNDER OR WITHIN 1:1 INFLUENCE OF PAVEMENT SHALL BE BACKFILLED WITH MDOT CL-II GRANULAR MATERIAL AND COMPACTED TO A MIN. 95% MAX. DENSITY (STD. PROCTOR).



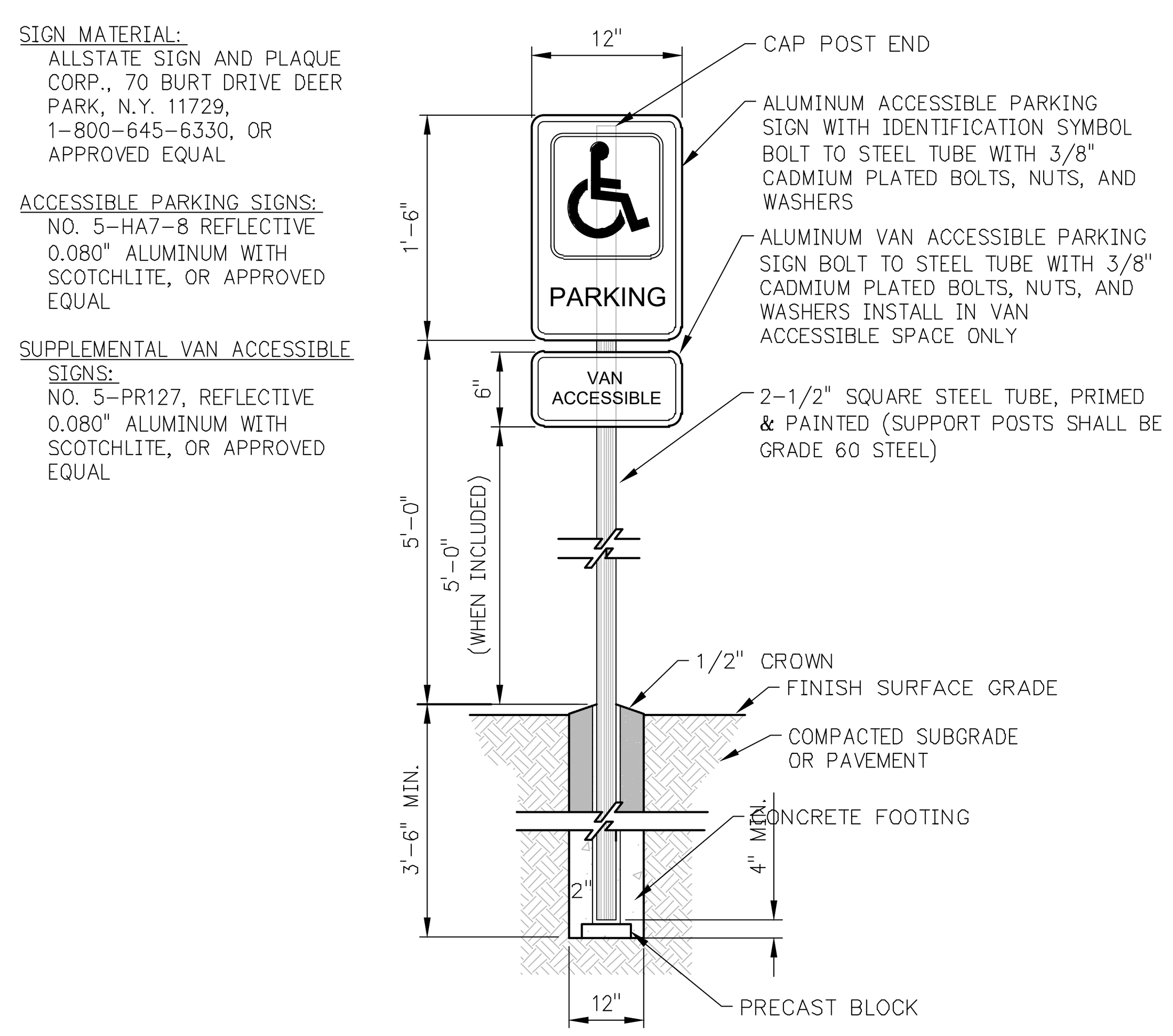
1/2 OVERFLOW PARKING DETAIL
NO SCALE



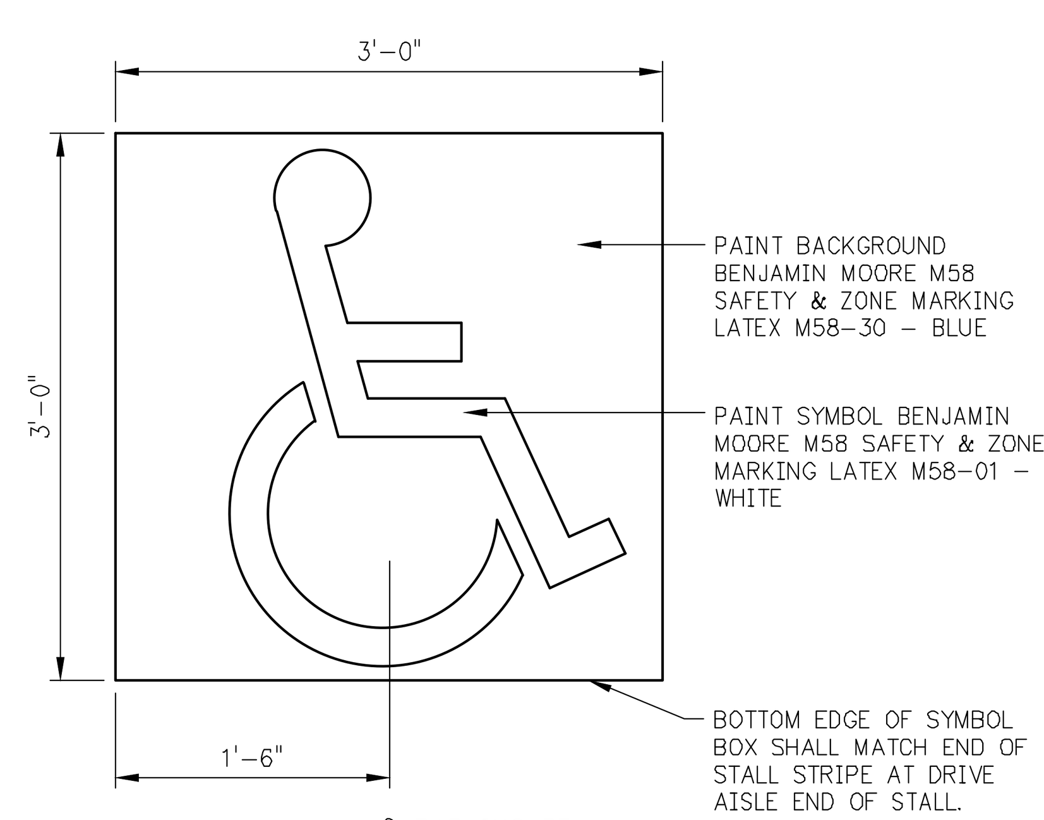
2/2 CURB DETAIL
(MODIFIED M.D.O.T. TYPE F-4)
NO SCALE



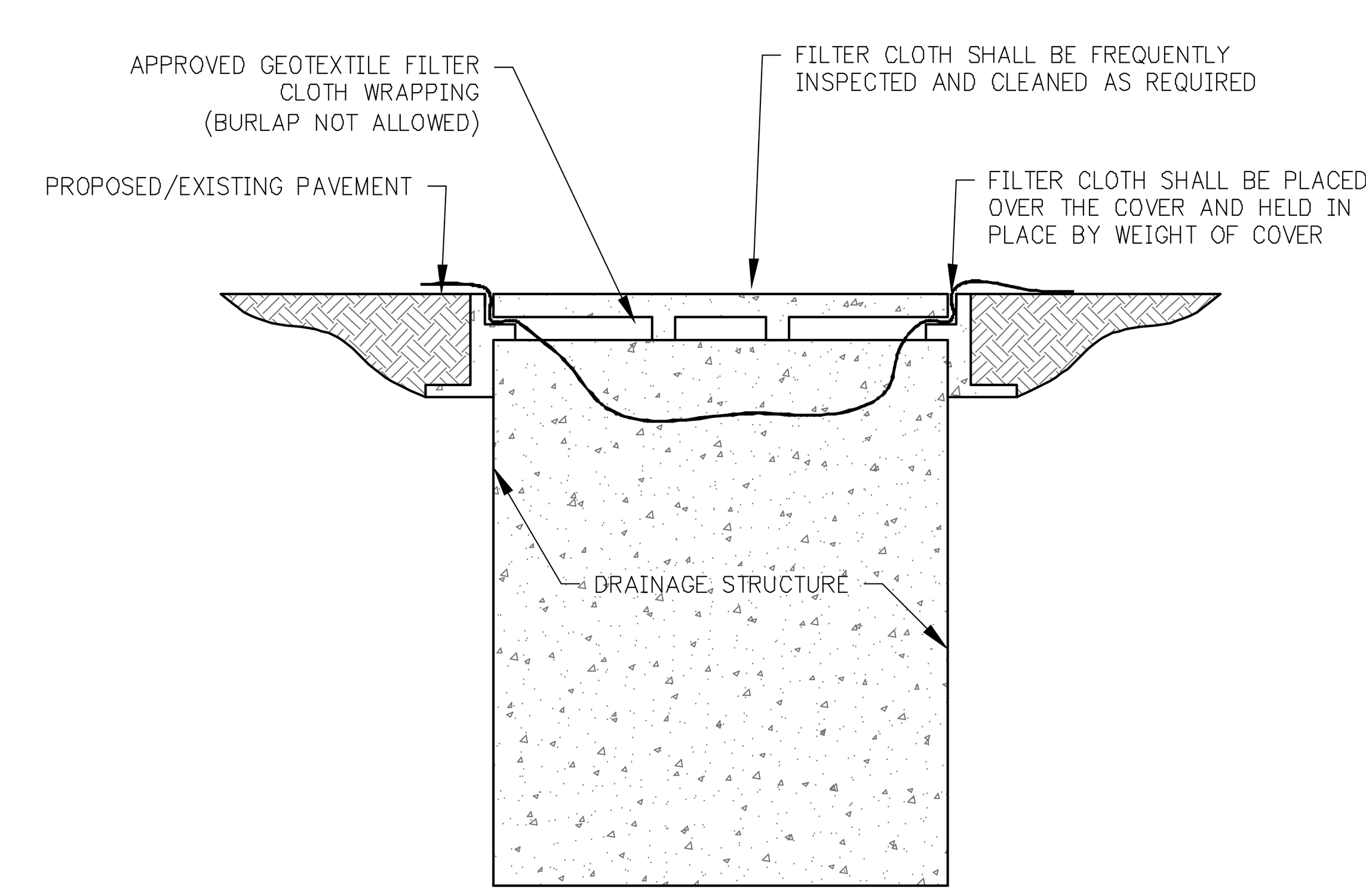
3/2 TYPICAL SECTION-UNREINFORCED RETAINING WALL
NO SCALE



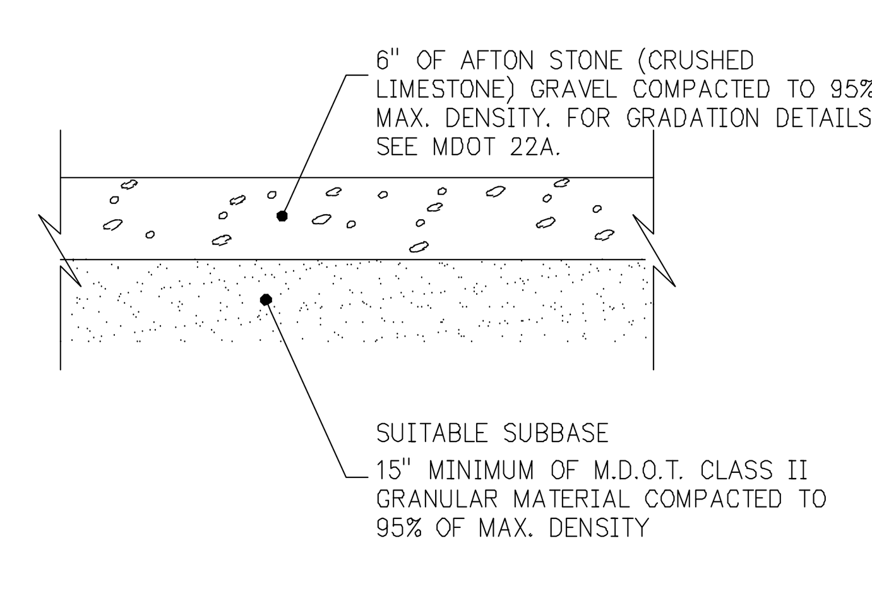
4/2 BARRIER FREE PARKING SIGN DETAIL
NO SCALE



5/2 HANDICAP PAVEMENT SYMBOL DETAIL
NO SCALE



6/2 INLET PROTECTION DETAIL
NO SCALE



7/2 TRAIL WALKWAY TYPICAL CROSS SECTION
NO SCALE

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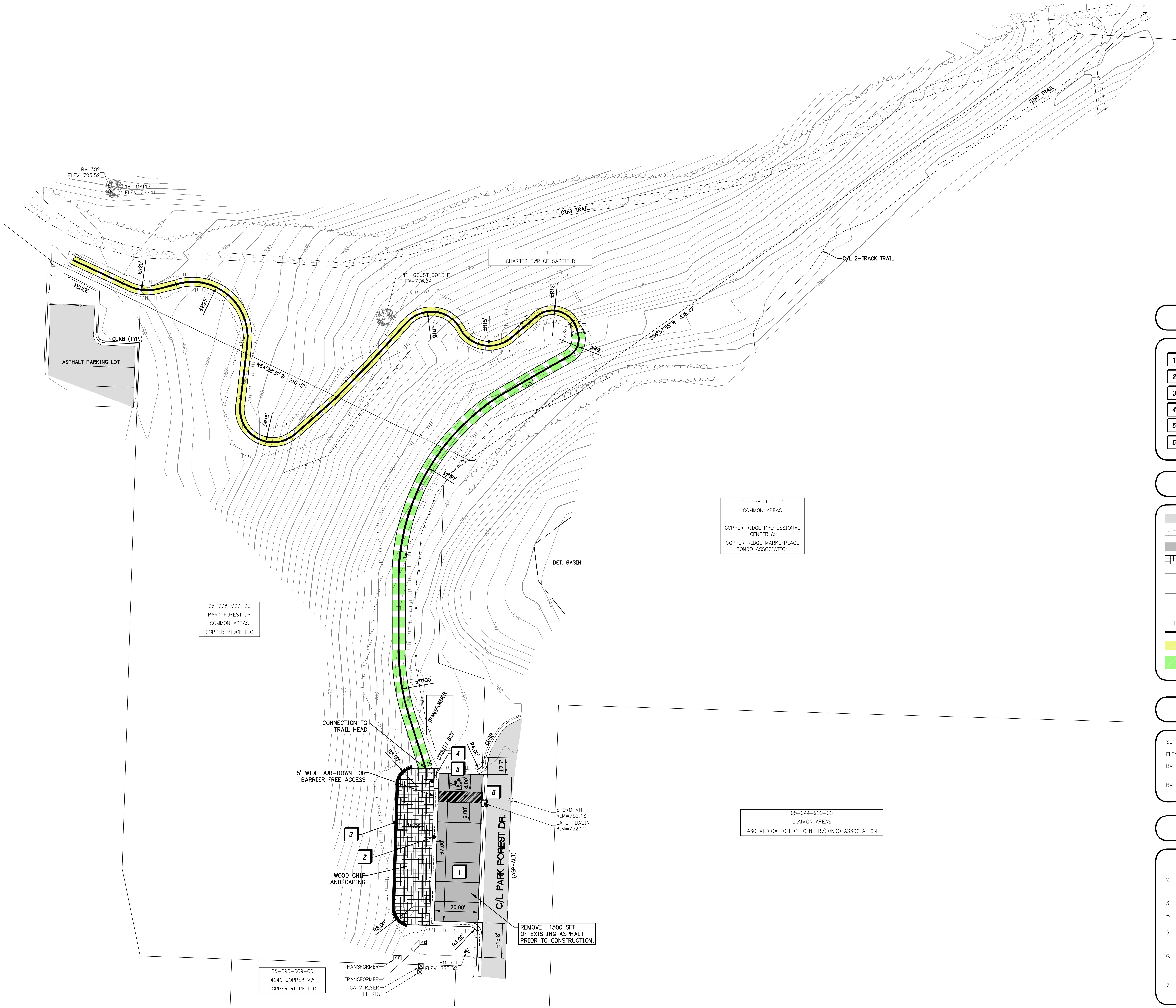
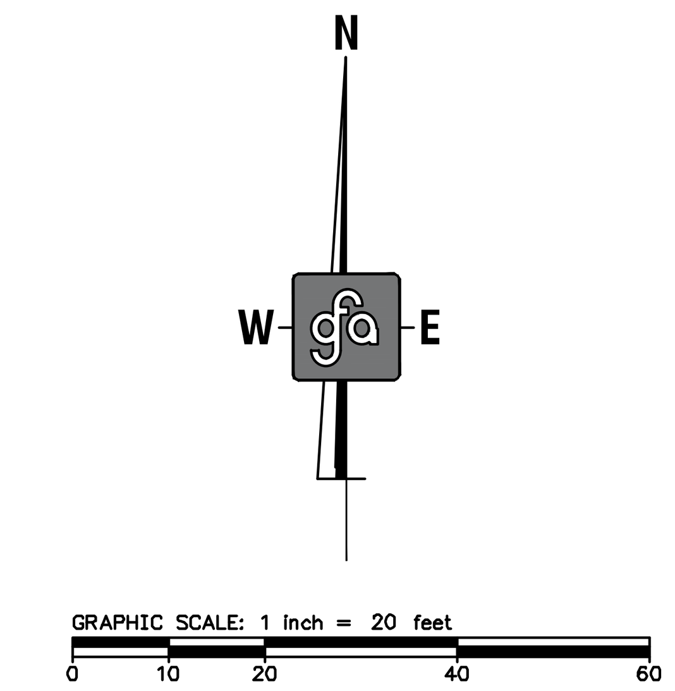
GARFIELD TOWNSHIP
COPPER RIDGE TRAIL HEAD IMPROVEMENTS
NOTES AND DETAILS
SECTION 9, T27N-R11W,
GARFIELD TOWNSHIP, GRAND TRAVERSE COUNTY, MICHIGAN

P.M.: JENNIFER HODGES, PE
DR.: JAA CKD.: MM
JOB NO.: 24236
C2.0





Detail Legend

1. OVERFLOW PARKING DETAIL (SEE DETAIL 1/2 SHEET C2.0)
2. CURB DETAIL (M.D.O.T. F4) (MATCH EXIST) (SEE DETAIL 2/2 SHEET C2.0)
3. 2' RETAINING WALL DETAIL (SEE DETAIL 3/2 SHEET C2.0)
4. BARRIER FREE PARKING SIGN DETAIL (SEE DETAIL 4/2 SHEET C2.0)
5. HANDICAP PARKING MARKING DETAIL (SEE DETAIL 5/2 SHEET C2.0)
6. INLET PROTECTION FILTER (SEE DETAIL 6/2 SHEET C2.0)

Sheet Legend

- EXISTING ASPHALT
- EXISTING TRAIL
- PROPOSED ASPHALT
- PROPOSED WOOD CHIP AREA
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- LOT LINE
- GRADING LIMITS
- 2' RETAINING WALL
- PROPOSED 4' PATH
- PROPOSED 6' PATH

Benchmark

SET CONTROL POINT NEAR NORTH WEST CORNER OF CLEARING

ELEVATION = 643.89 (NAVD88)

BM 301 – CHISELED SQUARE ON N.SIDE LIGHT POLE BASE ELEV.=755.38'(NAVD88)

BM 302 – BENCH TIE S.W. SIDE 18" MAPLE ELEV.=795.52'(NAVD88)

General Construction Notes

1. DEVELOPMENT OF THIS SITE SHALL BE IN ACCORDANCE WITH STATE, COUNTY AND TOWNSHIP REQUIREMENTS.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL LOCAL COUNTY & TOWNSHIP PERMITS AND INSPECTION FEES, INCLUDING BUILDING & SOIL EROSION.
3. PRIOR TO CONSTRUCTION, STAKING TO BE PROVIDED BY OWNER.
4. TOPSOIL SHALL BE STRIPPED AND STOCKPILED ON SITE TO BE USED FOR RESTORATION.
5. ALL DISTURBED NON-HARD SURFACE AREAS SHALL BE RESTORED WITH TOPSOIL, SEED AND MULCH. TOPSOIL SHALL BE AT A DEPTH NOT LESS THAN 4 INCHES.
6. CLEARING AND GRUBBING, INCLUDING TREE REMOVAL, TO BE PERFORMED AS NEEDED FOR CONSTRUCTION AND IS TO BE INCLUDED IN PRICE OF IMPROVEMENTS. ESTIMATED CLEARING AND GRUBBING = 0.08 ACRES
7. ALL REMOVED MATERIALS SHALL BE PROPERLY DISPOSED OFF OFF-SITE AT NOT ADDITIONAL COST TO THE OWNER.

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GARFIELD TOWNSHIP
COPPER RIDGE TRAIL HEAD IMPROVEMENTS
SITE PLAN
SECTION 9, T27N-R11W,
GARFIELD TOWNSHIP, GRAND TRAVERSE COUNTY, MICHIGAN

P.M.: JENNIFER HODGES, PE
DR: JAA
CKD: MM
JOB NO.: 24236
C3.0

Sheet Legend

- EXISTING ASPHALT
- EXISTING TRAIL
- PROPOSED ASPHALT
- PROPOSED WOOD CHIP AREA
- PROPOSED MAJOR CONTOUR (100)
- PROPOSED MINOR CONTOUR (100)
- EXISTING MAJOR CONTOUR (100)
- EXISTING MINOR CONTOUR (100)
- LOT LINE
- GRADING LIMITS
- 2' RETAINING WALL
- PROPOSED DRAINAGE PATTERN
- PROPOSED BOTTOM OF GUTTER (000.00G)
- PROPOSED TOP OF ASPHALT (000.00TA)
- PROPOSED BACK OF CURB (000.00BC)
- PROPOSED SLOPE (-0.0%)
- PROPOSED 4' PATH
- PROPOSED 6' PATH

Benchmark

SET CONTROL POINT NEAR NORTH WEST CORNER OF CLEARING

ELEVATION = 643.89 (NAVD88)

BM 301 – CHISELED SQUARE ON N.SIDE LIGHT POLE BASE
ELEV.=755.38'(NAVD88)

BM 302 – BENCH TIE S.W. SIDE 18" MAPLE
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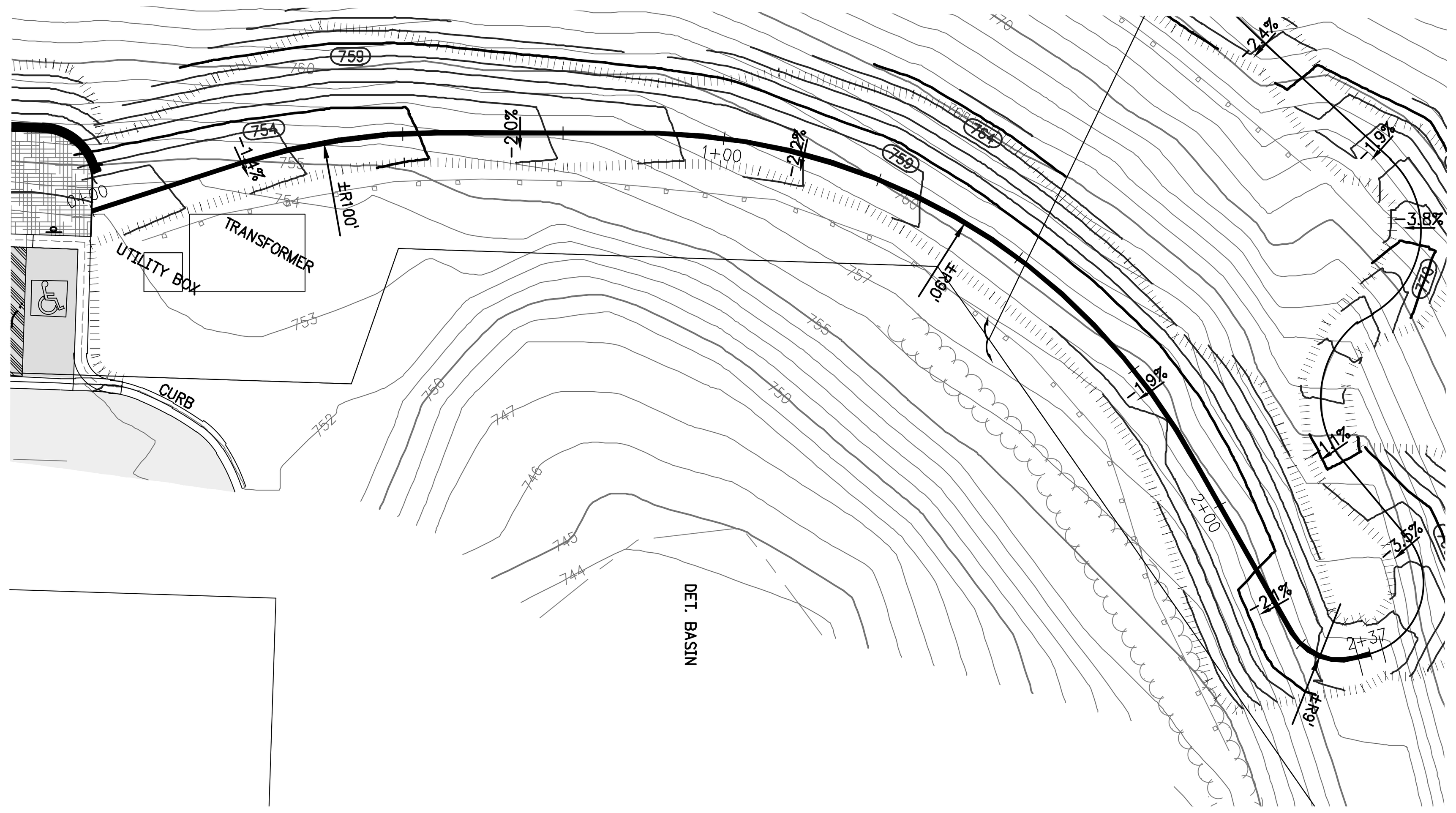
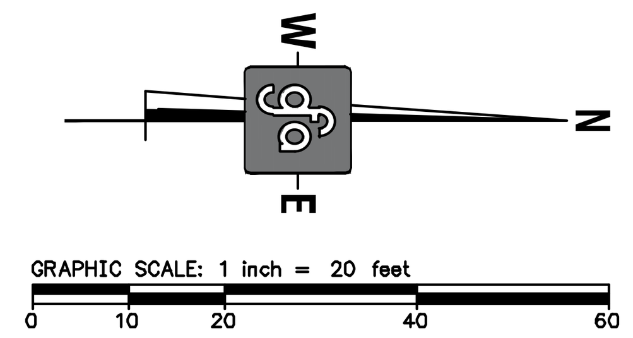
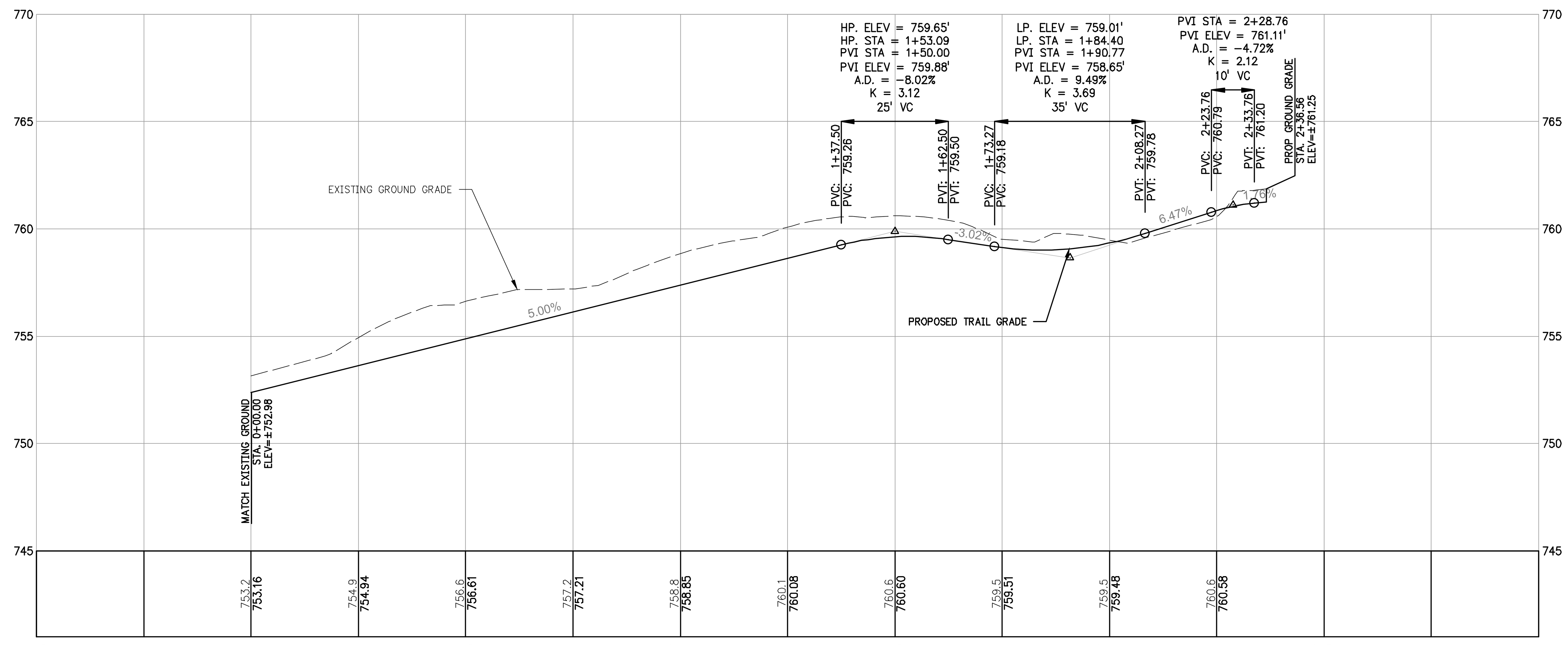
GARFIELD TOWNSHIP
COPPER RIDGE TRAIL HEAD IMPROVEMENTS
GRADING PLAN
SECTION 9, T27N-R11W,
GARFIELD TOWNSHIP, GRAND TRAVERSE COUNTY, MICHIGAN

P.M.: JENNIFER HODGES, PE
DR.: JAA
CKD.: MM
JOB NO.: 24236
C3.1

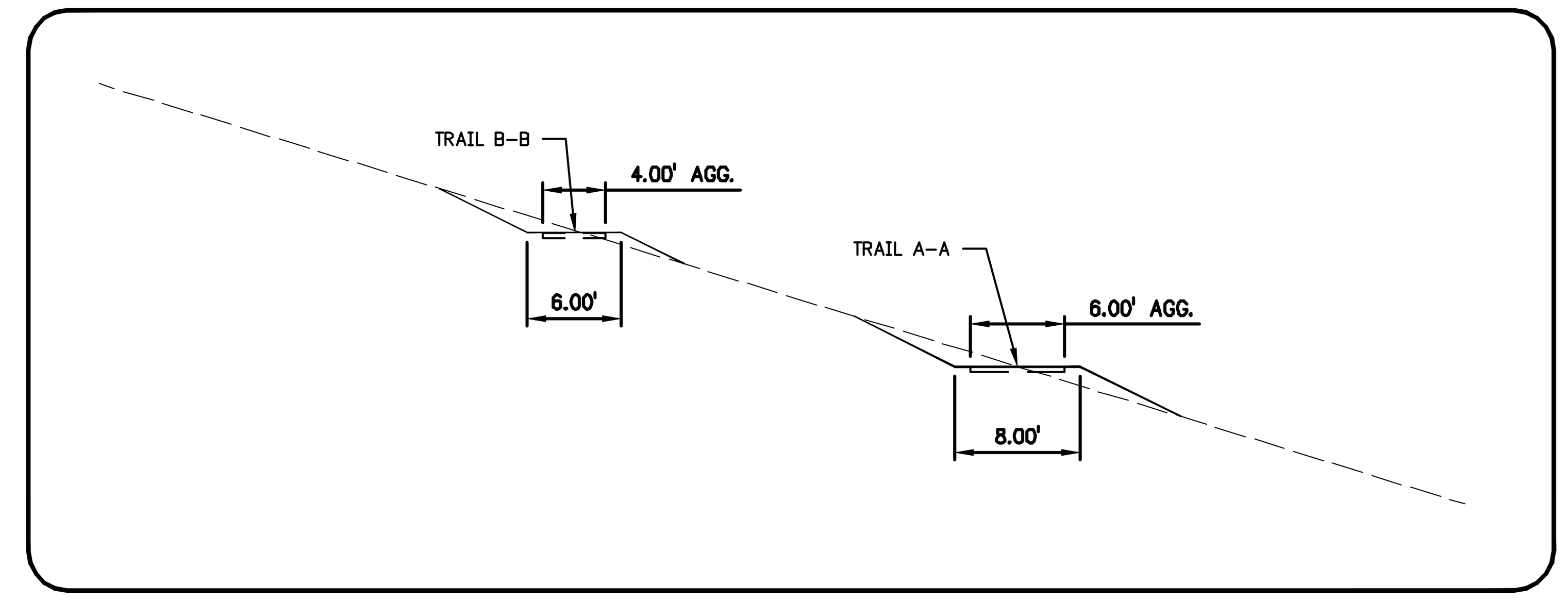






A-A ALIGNMENT
(STA. 0+00 TO 2+42.53)
SCALE:
HORIZONTAL: 1"=25'
VERTICAL: 1"=5'

Typical Cross Section



LOCATION MAP
NO SCALE

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GARFIELD TOWNSHIP
COPPER RIDGE TRAIL HEAD IMPROVEMENTS
PLAN AND PROFILE A-A
SECTION 9, T27N-R11W,
GARFIELD TOWNSHIP, GRAND TRAVERSE COUNTY, MICHIGAN

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JOB NO.: 24236	
C3.2	

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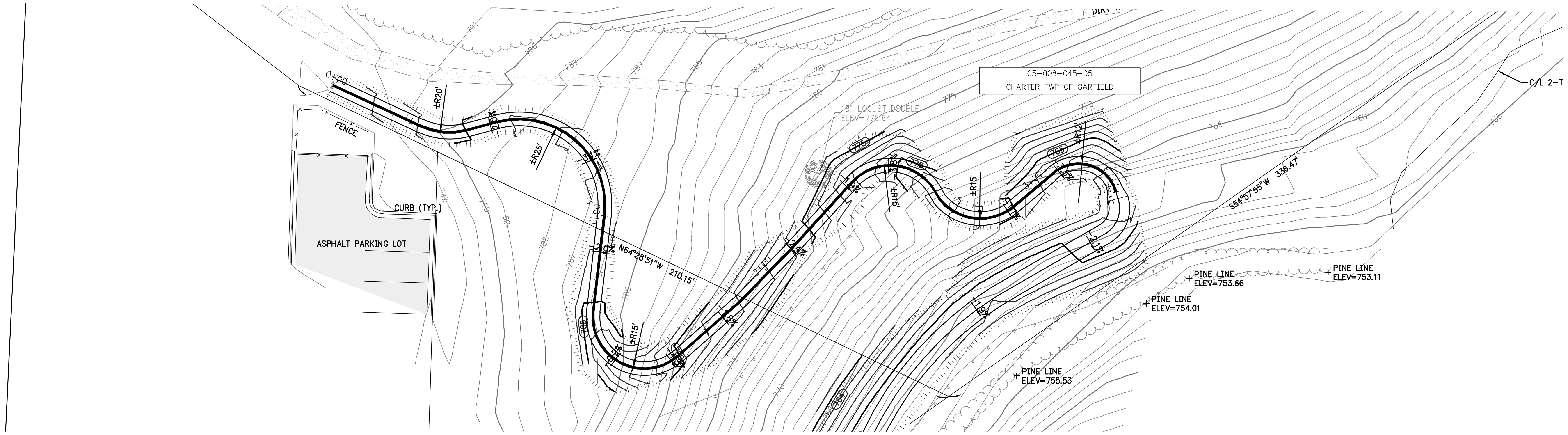
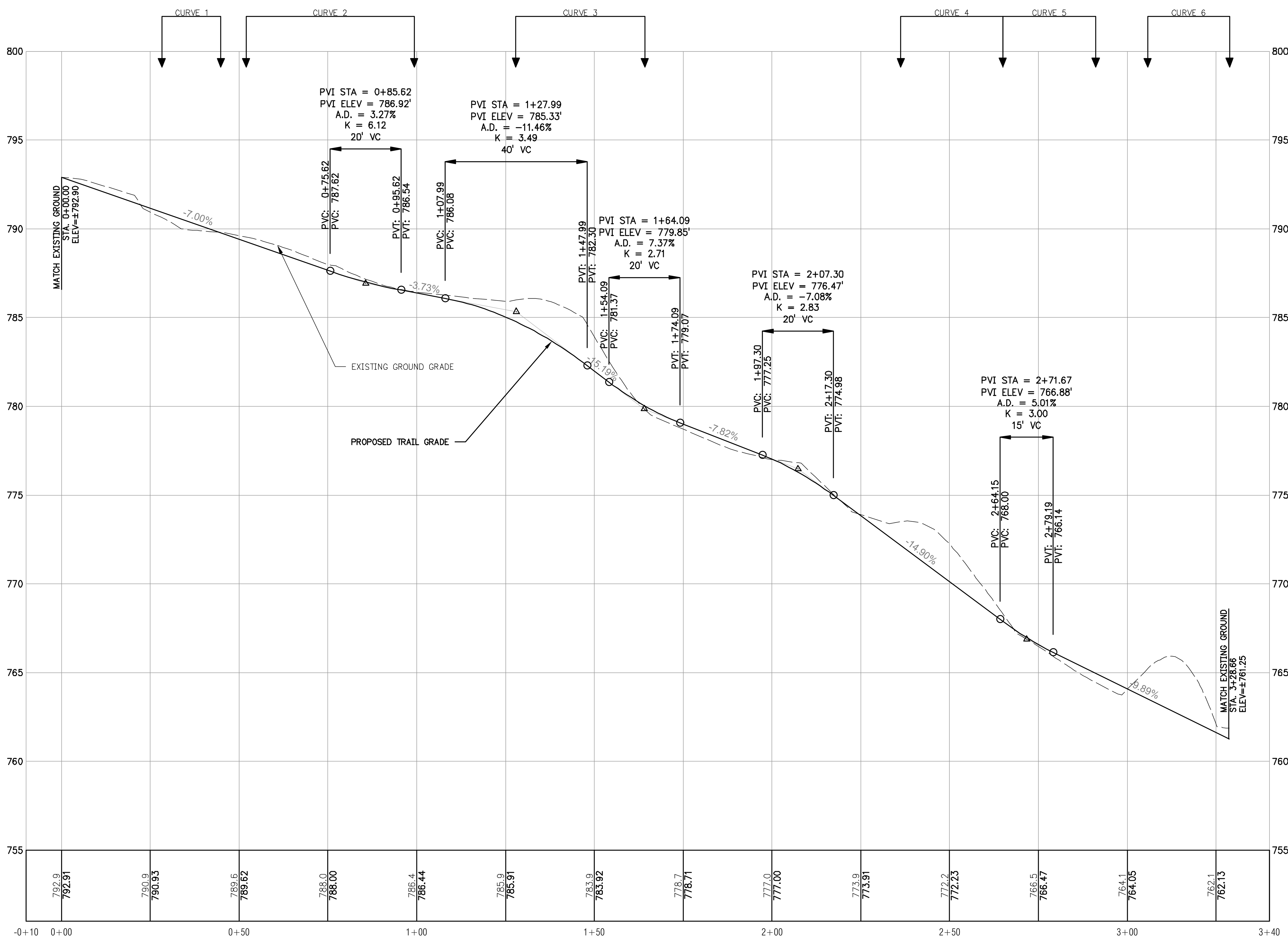


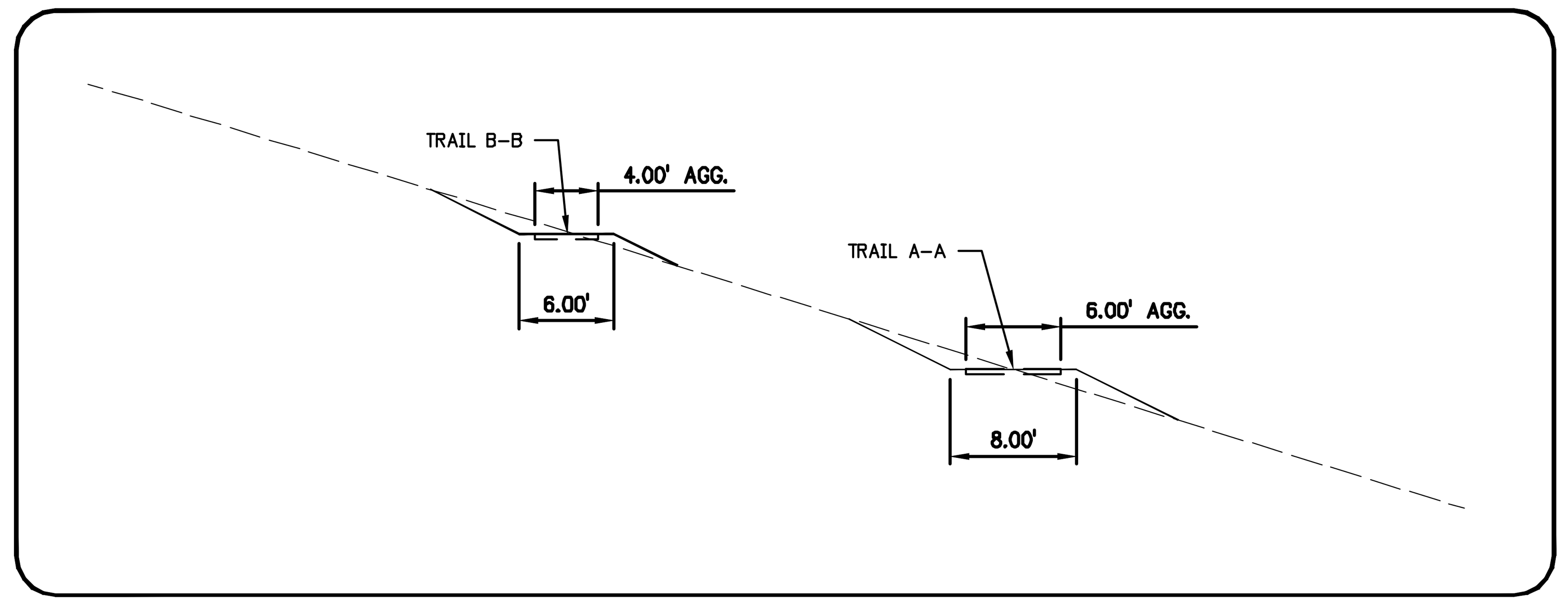
N
W E

GRAPHIC SCALE: 1 inch = 20 feet
0 10 20 40 60



B-B ALIGNMENT
(STA. 0+00 TO 3+40.93)
SCALE:
HORIZONTAL: 1"=25'
VERTICAL: 1"=5'

Typical Cross Section



LOCATION MAP
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GARFIELD TOWNSHIP
COPPER RIDGE TRAIL HEAD IMPROVEMENTS
PLAN AND PROFILE B-B
SECTION 9, T27N-R11W,
GARFIELD TOWNSHIP, GRAND TRAVERSE COUNTY, MICHIGAN

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DR.: JAA CKD.: MM
JOB NO.: 24236
C3.3