Request for Proposal
NCSD-25-009

ASPHALT MILLING, TACK COAT, PAVING, SEALCOATING AND STRIPING

Niskayuna Central School District
1430 Balltown Road
Niskayuna, NY 12309
Phone: (518) 377-4666

SUBMISSIONS DUE BY: APRIL 9, 2025 at 2:00 PM

TIMELINE:
RELEASE OF PROPOSAL: MARCH 4, 2025, *REVISION RELEASED MARCH 31, 2025*
PROPOSAL DUE DATE: APRIL 9, 2025 at 2:00 pm
PROPOSAL EVALUATION: APRIL 9, 2025 at 2:00 pm
PROPOSAL AWARD BY BOARD OF EDUCATION: APRIL 23, 2025
WORK TO COMMENCE PRIOR TO: JUNE 30, 2025

In accordance with the provisions of Section 103 of the General Municipal Law, an advertisement has been published in the local newspaper.

PROPOSAL SUBMITTAL

POINT OF CONTACT

The sole point of contact at the District for purposes of this RFP prior to the award of a contract is the Purchasing Agent. All contact relative to this RFP should be made in writing and directed to:

Michael DeSantis, Purchasing Agent
Niskayuna Central School District
1430 Balltown Road
Niskayuna, New York 12309
518-377-4666 x50709
mdesantis@niskyschools.org

PROPOSAL REQUIREMENTS

In order to provide a uniform review process, all proposals must include the following:

1. **Proposal Cover Sheet:** Include the Request for Proposal title and number, the name, address and telephone number of the company, name/title of primary contact person, and submission date ***(Use Attachment A: Proposal Cover Sheet)***
2. **Summary of Company's Qualifications:** An overview of the company, prior or present projects that demonstrate your qualifications to perform this work.
3. **Cost of Project:** Provide a unit cost for each item specified based on the requirements outlined in this RFP, specifically Section VII Specifications. (***Use Attachment B: Proposal Pricing Sheet)***
4. **Certificate of Insurance:** Provide a certificate of insurance that addresses the requirements outlined in ***Attachment C***.
5. **Required Certifications:** Provide the Non-Collusion Certification and Iran Divestment Act Certification ***(Attachments D and E***).
6. **References:** Provide a minimum of five (5) references that you have worked with in the last five (5) years. ***(Use Attachment F)***

FORM OF SUBMITTAL

Submit one (1) clearly labeled original and one (1) copy of your Proposal and completed Attachments in a sealed package with the company submitting identified on the package, addressed as follows:

Niskayuna Central School District
1430 Balltown Road
Niskayuna, NY 12309

Attention: Michael DeSantis, Purchasing Agent
ASPHALT MILLING, TACK COAT, PAVING, SEALCOATING AND STRIPING

DELIVERY OF PROPOSALS

The Proposal shall be properly addressed as shown in and delivered or mailed so that the Proposal is received on or before the response date and time.
Requests for extension of this date or time shall not be granted. Proposers mailing bids should allow sufficient mail delivery time to ensure timely receipt by the District; please note that daily mail through the U.S. Post Office often arrives at the District after 2:00 PM. Proposals received by the District after the closing time and date will not be considered. Proposals delivered by e-mail or facsimile shall not be considered. The District does not accept responsibility for late or mis-delivered Proposals.

RESPONSE DATE AND TIME
The response due date and time is:

APRIL 9, 2025 at 2:00 PM

SECTION I - GENERAL INFORMATION/CONDITIONS

Summary Statement:
The purpose of this Request for Proposal (RFP) is to establish a contract with a contractor for milling and paving, sealcoating and striping in at specified locations in the Niskayuna Central School District, with work to commence prior to June 30, 2025 and to be complete prior to September 1, 2025. The intent of this RFP is to award a contract to the lowest responsible and responsive proposer whose proposal meets the requirements of the RFP. Proposers shall make all investigations necessary to thoroughly inform themselves about the District. No plea of ignorance by the Proposer of conditions that exist or that may hereafter exist as a result of failure or omission on the part of the Proposer to make the necessary examinations and investigations, or failure to fulfill in every detail the requirements of the RFP, will be accepted as a basis for varying the requirements of the District or the compensation to the vendor.

General Information:

Niskayuna Central School District is located in Schenectady County, operates one high school, two middle schools and five elementary schools. The district has approximately 900 employees total, working in teaching/instructional, support staff and administrative roles.

SECTION II - GENERAL REQUIREMENTS

Instructions to Proposers:

The submission of a Proposal will indicate that the Proposer (1) has read the instructions, (2) will abide by the terms and conditions governing this Request for Proposal, and (3) understands the requirements for delivery of the services specified.

General Instructions:
Proposers must submit all required forms with their proposal. A completed proposal must be submitted. Each Proposal is considered a binding contract. Proposers **cannot** change prices after they have been awarded a contract. When a contract is awarded, the successful Proposer **must** provide all of the services.

Questions:
Contractors are responsible for reading carefully and understanding fully the terms and conditions of this RFP. All questions, please direct them to Michael DeSantis, Purchasing Agent, **mdesantis@niskyschools.org**

Non-Mandatory Site Visit:
Scheduled for Friday, March 21, 2025 at 10:00 am. ***COMPLETED***
If you plan on attending the site visit, please send email confirmation to the Purchasing Agent, Michael DeSantis, mdesantis@niskyschools.org

SECTION III - TERMS AND CONDITIONS

1. The issuance of this RFP request constitutes only an invitation to submit a response to the District.

2. No officer of the school district or member of the Board of Education shall have interest in this RFP award.

3. This RFP request does not commit the District either to award a contract or to pay any costs incurred in the preparation of a submission. Proposers shall bear all costs associated with submission preparation, submission and attendance at presentation interviews, or any other activity associated with this proposal request or otherwise.

4. All proposals and accompanying documentation become the property of the Niskayuna Central School District. The District shall not divulge any information presented to anyone outside the District, unless required by law, without the written approval of the individual or firm. The District reserves the right to use the information and any ideas presented in any submission in response to this RFP, whether or not the submission is accepted. Submitted proposals may be reviewed and evaluated by any person or outside consultant retained by the District, other than one associated with a competing applicant, as designated by the District. If a proposer believes that any information in its proposal constitutes a trade secret and wishes such information not be disclosed if requested by a member of the public pursuant to the State Freedom of Information Law, Article 6 of the Public Officers Law, the proposer shall submit with its proposal a letter specifically identifying the page number, line or other appropriate designation, that information which it deems to constitute a trade secret and explain in detail why such information is a trade secret. Failure by a proposer to submit such a letter with its bid identifying trade secrets shall constitute a waiver by the applicant of any rights it may have under Section 89 (Subdivision 5) of the Public Officers Law relating to protection of trade secrets.

5. The District neither makes nor assumes any contractual obligation by issuing this RFP receiving and evaluating responses, or making preliminary proposer selections. Providing a response as provided herein shall neither obligate nor entitle a proposer to enter into a contract with the District.

6. The District reserves the right to determine in its sole and absolute discretion whether any aspect of the proposer's submission satisfactorily meets the criteria established in this RFP, the right to seek clarification from any proposer(s), and the right to cancel and/or amend, in part or entirely, the RFP at any time prior to a written contract.

7. It is understood that any submission received and evaluated by the Niskayuna Central School District will be used as the basis for the cost and terms of an agreement between the District and the particular proposer. In submitting a response, it is understood by the proposer that the District reserves the right to accept any submission, to reject any and/or all submissions and to waive any irregularities or informalities that the District deems is in its best interest.

8. The District is not obligated to respond to any submission nor is it legally bound in any manner whatsoever by the submission of a response.

9. Each response shall be reviewed for completeness and for the technical and

administrative requirements of the RFP. The District has the option of requesting the proposer to submit missing information or provide clarification of those issues deemed incomplete, or disqualifying the bid. A proposal may be disqualified for lack of response to such a request.

10. RFP responses submitted to the District must be valid for a period of at least 120 days from the deadline for receipt of proposal responses as defined in the time frame section of this document.

11. The selected proposal(s)will become part of any resulting legal contract, should contracts be awarded. The term of the resultant contract shall commence upon award and shall remain in effect until completion, inspection, and final acceptance of specified project(s) unless terminated, canceled, or extended as otherwise provided herein.

12. The District may, from time to time, inform other local governmental entities and school districts that they may acquire items or services listed in this Request for Proposals. Such acquisition(s) shall be at the prices stated herein, and shall be subject to proposer's acceptance. Other local government entities or school districts purchase orders shall be submitted directly to the vendor within the specified contract period referencing the District's contract. Niskayuna Central School District will not be liable or responsible for any obligations, including, but not limited to, payment, and for any item ordered by an entity or school other than the Niskayuna Central School District.

13. When specifications are revised, the Niskayuna Central School District will issue an addendum addressing the nature of the change. Proposers must sign and include it in the returned proposal package.

14. It is a requirement that proposers indicate specifically in the response any sub-contract, alliance, partner, franchise, or other "non-employee" relationship with any resource(s) they will utilize if they are chosen as the selected proposer. Note: The District reserves the right to approve and designate sub-contractors to be used in any of the services being proposed.

15. Niskayuna Central School District reserves the right to introduce additional factors not contained in this RFP in order to obtain the most suitable solution. After submitting a proposal, each respondent must be prepared to have the operational aspects of their proposal reviewed in detail by District representatives.
16. At any time prior to the specified proposal due time and date, a vendor (or designated representative) may withdraw their submission.

17. The District Board of Education reserves the right to award a contract or contracts based on the best interests of the District. The Board of Education's decision will be final.

Proposers Default – Failure of the Proposer to comply with any of these provisions may be considered a reason for rejection of the Proposal.

SECTION IV - SPECIFICATIONS

The Niskayuna Central School District is seeking to establish a contract with a contractor for Milling, Paving and Striping at:

- Craig Elementary School, 2566 Balltown Road, Niskayuna, NY 12309
- Glencliff Elementary School, 961 Riverview Road, Rexford, NY 12148
- Hillside Elementary School, 1100 Cornelius Avenue, Niskayuna, NY 12309
- Rosendale Elementary School, 2445 Rosendale Road, Niskayuna, NY 12309
- Niskayuna High School, 1626 Balltown Road, Niskayuna, NY 12309
- Transportation Department, 1301 Hillside Avenue, Niskayuna, NY 12309

Seal Coating and Striping at:

- Niskayuna High School, 1626 Balltown Road, Niskayuna, NY 12309

ATTACHMENT B (PROPOSAL PRICING SHEET) OUTLINES THE SPECIFIED WORK AND SQUARE FOOTAGES BY LOCATION AND APPENDIX A-1 THROUGH A-6 PROVIDE MAPS/DEPICTIONS OF WORK TO BE PERFORMED.

SCOPE

- The bidder shall provide all material, labor and equipment necessary to perform the work required by this agreement.
- **Work to be completed as soon as possible.**
- All services under this scope shall be performed under the direction of and subject to approval of the Director of Operations & Maintenance or his designee.
- Services shall be performed during weekdays in eight hour scheduled shifts coordinated with the district. Some Saturday or weekend work may be required to ensure safety and avoid disruption when school is in session.
- **Asphalt and Milling Specifications:** Please refer to (Appendix A-1 to A-6, Appendix B, Appendix C, Appendix D, Appendix E and Appendix F)
- **Overlay and Mill Transitions of Pathway:** Please refer to (Appendix G)
- Stripe pavement and paint letters, arrows, traffic markings and parking/handicap stalls upon completion of paving work at all locations.
- Warranties: The District shall be provided with a full manufacturer's warranty for materials as a condition of award. The contractor shall warranty all defects in materials and workmanship for a period of one year from completion of work at each location.

Materials:

Asphalt Cement: ASTM D 3381 for viscosity-graded material; ASTM D 946 for penetration-graded material and complying with NYSDOT standard specifications for material designation 702-02.

Tack Coat: Emulsified asphalt; Complying with NYSDOT Standard Specifications table 702-7 for Diluted Tack Coat and table 702-8 for Straight Tack Coat.
Non-reflective Pavement Marking Paint: Durable, high skid resistant, non-reflective pavement marking. Material shall be a resilient preformed thermoplastic product which contains a minimum of thirty percent (30%) intermixed anti-skid/anti-slip elements and

where the top surface contains anti-skid/anti-slip elements with a minimum hardness of 9 (Mohs scale). Material shall be capable of being affixed to Portland cement concrete pavements.

Pavement Marking Paint: Alkyd-resin type, ready-mixed complying with AASHTO M 248, Type I and NYSDOT Standard Specifications Section 640 for Material Designation 640.0202. Add silica-sand for non-skid surface on all striping in handicapped parking spaces, cross-walks, and bus parking markings.

Pavement Marking Colors:

1. Regular parking spaces – white
2. Handicapped spaces and striped aisles – blue
3. Stop bar – white
4. Crosswalk – white
5. Directional arrow marking – white
6. Direction of travel center line – yellow
7. Concrete surfaces - black

Milling Execution:

Clean existing pavement surface of loose and deleterious material immediately before cold milling. Remove existing asphalt pavement by cold milling to grades and cross sections indicated.

1. Mill to a depth as depicted on the plans for each site (Refer to Appendix A1-A-6).
2. Mill to a uniform finished surface free of excessive gouges, grooves, and ridges.
3. Control rate of milling to prevent tearing of existing asphalt course.
4. Repair or replace curbs, manholes, and other construction damaged during cold milling.
5. Excavate and trim unbound-aggregate base course, if encountered, and keep material separate from milled hot-mix asphalt
6. Patch surface depressions deeper than 1/2 inch after milling, before wearing course is laid.
7. Dispose of milled asphalt material off-site.
8. Keep milled pavement surface free of loose material and dust.
9. Do not allow milled materials to accumulate on-site.

Tack Coat: Apply in accordance with NYSDOT Standard Specifications to contact surfaces of previously constructed asphalt, newly constructed asphalt or Portland cement concrete, surfaces abutting or projecting into hot-mixed asphalt pavement, and milled surfaces. Distribute at rate according to Table 407-1 of the NYSDOT Standard Specifications.

1. Tack coat shall only be applied on prepared clean pavement.
2. Shall be uniformly applied.
3. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.
4. Paving over tack coat shall not commence until the emulsion has broken (turned from brown to black) and is tacky when touched.
5. Diluted Tack Coat shall be used for conventional asphalt pavements and is to be applied between all lifts of asphalt courses. Diluted tack coat is to be applied on top of milled pavement surfaces and on top of concrete base.
6. Straight Tack Coat shall be used for conventional pavement overlay, only if existing pavement is not milled. Straight tack shall also be used on slopes exceeding 5%.
7. Allow tack coat to cure undisturbed before applying hot-mix asphalt paving.

Overlay Execution:
A. Clean, seal, and fill joints and cracks in the existing pavement prior to the application of new hot mix asphalt in accordance with NYSDOT Standard Specification Section 633.
B. Fill any depressions and wheel path ruts prior to paving as specified in accordance with NYSDOT Standard Specification Section 404.
C. Mill transitions.

Placing Mix:
Machine place hot-mix asphalt on prepared surface, spread uniformly, and strike off. Place asphalt mix by hand in 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. Place hot-mix asphalt base course in number of lifts and thicknesses indicated.
2. Spread mix at a minimum temperature of 250 deg F.
3. Begin applying mix along centerline of crown for crowned sections and on high side of one- way slopes unless otherwise indicated.
4. Regulate paver machine speed to obtain smooth, continuous surface free of pulls and tears in asphalt-paving mat.

Sealcoating:
A. Seal coating shall be Crafco Asphalt Pavement Sealcoating, Action Pave OR EQUAL; please detail on the Bid Form the product to be used.
B. Sealcoating shall only be applied per the manufacturer's recommendations. All recommendations shall be provided to the owner before seal coating is applied.

Pavement Markers:
A. Do not apply pavement-marking paint until layout, colors, and placement have been verified with the Director of Operations and Maintenance.
B. Sweep and clean surface to eliminate loose material, dust, and debris. Pavement shall be free from dirt, dust, loose stones, debris, oil and other foreign material, which may be detrimental to the adhesion of the pavement markings.
C. Apply paint with mechanical equipment to produce uniform straight edges. Apply at manufacturer's recommended rates to provide minimum 15 mils dry thickness (DFT).
D. Stripes shall have clean-cut edges and be installed as straight and true lines with no deviations in alignment. Symbols shall have clean cut edges and true and smooth curves and tangents.
E. Apply an additional coat on all pavement markings 5 days after initial application.

Protecting and cleaning:
1. Protect pavement marking from damage and wear during the remainder of the construction period.
2. Clean spillage and soiling from adjacent construction using cleaning agents and procedures recommended by the manufacturer of affected construction.
3. Contractor shall reapply pavement markings if damage occurs as a result of Contractor negligence, failure to protect the work area, and/or the installation does not meet the specifications.

SECTION V – INFORMATION TO BIDDERS

1. **General Scope:** Niskayuna Central School District is desirous to establish a contract with a contractor for Asphalt Milling, Tack Coat and Paving. This will include specified Sealcoating and Line Painting

2. **Award of Contract:** The District will award the bid to the lowest bidder and/or responsible bidder whose bid is most advantageous to the District. In determining the most advantageous bid, the District will consider criteria such as, but not limited to, cost, bidder's past performance and/or service reputation, and service capability, quality of the bidder's staff or services, customer satisfaction, bidder's past relationship with the District.

3. **Contract Term:**
A. Effective, upon award, the contract term shall commence prior to June 30, 2025 and be in effect through June 30, 2026 for the specified work.

4. **Bid Notification:** Successful bidder(s) will be notified via emails and/or purchase orders after the Board of Education approval of the Bid.

5. **Pricing:** Prices for all goods and/or services shall be firm for the duration of this contract.

6. **Invoicing:** An itemized invoice should be prepared for each individual service and submitted directly to the Niskayuna Central School District, Accounts Payable Department, 1430 Balltown Road, Niskayuna NY 12309.

7. **Payment Term:** Net thirty (30) days from receipt of the invoice.

SECTION VI – GENERAL CONDITIONS

1. All bids received after the time stated in the Notice to Bidders may not be considered and will be returned to the bidder. The bidder assumes the risk of any delay in the mail or in the handling of the mail by employees of the school district. Whether sent by mail or by means of personal delivery, the bidders assume responsibility for having his bid deposited on time at the place specified.

2. Sales to school districts are not affected by any fair-trade agreements. (General Business Law, Ch. 39, Sec. 369-a, Sub. 3, L. 1941)

3. No charge will be allowed for federal, state, or municipal sales and excise taxes since the school district is exempt from such taxes. The price bid shall be net and shall not include the amount of any such tax. Exemption certificates, if required, will be furnished on forms provided by the bidder.

4. Under penalty of perjury the bidder certifies that:
(a) The bid has been arrived at by the bidder independently and has been submitted without collusion with any other vendor of materials, supplies, or equipment of the type described in the invitation for bids.
(b) The contents of the bid have not been communicated by the bidder, nor, to its best knowledge and belief, by any other its employees or agents, to any person not an employee or agent of the bidder or its surety on any bond furnished herewith prior to the official opening of the bid.

5. No interpretation of the meaning of the specifications or other contract document will be made to any bidder orally.

SECTION VII - BID FORMAT AND INSTRUCTIONS

POINT OF CONTACT
The sole point of contact at the District for purposes of this RFP prior to the award of a contract is the Purchasing Agent. All contact relative to this RFP should be made in writing and directed to:

Michael DeSantis, Purchasing Agent
Niskayuna Central School District
1430 Balltown Road
Niskayuna, New York 12309

ATTACHMENT A – BIDDERS COVER SHEET

BIDS TO BE OPENED:
TIME: 2:00 PM

DATE: April 9, 2025

LOCATION:
Niskayuna Central Schools
District Office
1430 Balltown Road
Niskayuna, New York 12309

NAME OF BIDDER:

_____

ADDRESS: _____

_____

_____

TEL: _____

FAX: _____

E-MAIL: _____

SIGNATURE/TITLE OF AUTHORIZED REPRESENTATIVE:

_____

_____

DELIVERY DATE / TIME
(For District Use Only): _____

The following specifications are to serve as the minimum requirements for this solicitation and should not be construed to exclude any other make or model of comparably equipped instruments of the same class designation. Any substitute may require a sample to be provided to the District prior to bid award.

ATTACHMENT B – PROPOSAL PRICING SHEET

Bidders recognize that square footages listed are estimates at this time. It is the district's intent to award a bid for approximate total estimated square footage listed above, with the potential for additional work based on the pricing provided. Once a bid is awarded, the district will work with the successful contractor to determine exact square footages by location.

PROPOSAL PRICING

Price for Milling , Preparation, Tackcoat, Topcoat **115,328 SQUARE FEET** **Craig Elementary School - 5,750 Square Feet** **Glencliff Elementary School - 3,372 Square Feet** **Hillside Elementary School - 3,677** **Niskayuna High School - 7,025 Square Feet** **1301 Hillside Avenue - Transportation - 95,504 Square Feet**	**$**
Price for Medium Duty Asphalt **13,270 SQUARE FEET** **Hillside Elementary School (Select Location - 8,270 Square Feet)** **Rosendale Elementary School (Select Location - 5,000 Square Feet)**	**$**
Price for Sealcoating **94,500 SQUARE FEET** **Niskayuna High School - 94,500 Square Feet**	**$**
ADDITIONAL PRICING	
Striping	**Cost/Square Foot:** **$ _____** **Estimated Cost of All Locations:** **$_____**
MILLING, PREPARATION, TACK COAT, TOPCOAT **PRICE PER ADDITIONAL 1,000 SQUARE FEET**	**$**
FULL DEPTH REPAIR (IF NEEDED) **PRICE PER 10 SQUARE FEET**	**$**

BUS GARAGE ALTERNATE FOR HEAVY DUTY ASPHALT	**$**

ATTACHMENT –C-INSURANCE REQUIREMENTS

Niskayuna Central School
Contractor Insurance Requirements.

1. Commercial General Liability Insurance (including contractual liability coverage) insuring against damages to persons and property (including, but not limited to, loss of life) in an amount not less than a combined single limit of at least One Million Dollars ($1,000,000) for each occurrence and Three Million Dollars ($3,000,000) for General Aggregate (on a per project basis).

2. Automobile Liability Insurance (including non-owned or hired vehicles) insuring against damages to persons and property (including, but not limited to, loss of life) in an amount not less than a combined single limit of at least One Million Dollars ($1,000,000.00) for each occurrence.

3. Worker's Compensation Insurance covering hazardous material abatement consultant and its agents and employees at the New York Statutory limit including Employers' Liability with limits of $100,000.00 for each accident. $500,000 for each disease/policy limit, and $100,000 for disease for each employee.

4. All insurance will be affected under standard form policies by insurers of recognized responsibility which are licensed to do business in the State of New York and which are rated as A-(VIII) or better by the latest edition of Best's Rating Guide or other recognized replacement therefore. Except as otherwise provided to the contrary in this Section, any insurance required by this Agreement may be obtained by means of any combination of primary and umbrella coverages and by endorsement and/or rider to a separate or blanket policy and/or under a blanket policy in lieu of a separate policy or policies, provided that hazardous material abatement consultant shall deliver said separate or blanket policies and/or endorsements and/or riders evidencing to Owner that the same complies in all respects with the provisions of this Agreement and that the coverages

All policies for each insurance shall include Niskayuna Central School District as additional insured on a primary and non-contributory basis (this requirement shall not apply to workers' compensation insurance, employers' liability insurance or professional liability insurance)

ATTACHMENT -D- NON-COLLUSION BIDDING CERTIFICATION

NISKAYUNA CENTRAL SCHOOLS
BID PROPOSAL CERTIFICATIONS

Firm Name:
Business Address:
Telephone Number:
Date of Bid:

General Bid Certification
The bidder certifies that he will furnish, for the prices herein quoted, the materials, equipment and/or services as proposed on this bid.
I. Non-Collusive Bidding Certification

By submission of this bid proposal, the bidder certifies that he is complying with Section 103-d of the General Municipal Law as follows:

Statement of non-collusion in bids and proposals to political subdivision of the state. Every bid or proposal hereafter made to a political subdivision of the State or any public department, agency of official thereof where competitive bidding is required by statute, rule regulation, or local law, for work or services performed or to be performed or goods sold or to be sold, shall contain the following statement subscribed by the bidder and affirmed by such bidder as true under the penalties of perjury: Non-collusive bidding certification.

*(a) By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of knowledge and belief:

(1) The prices in this bid have been arrived at independently without collusion, consultation, communication or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor.
(2) Unless otherwise required by law, the prices which have been quoted in this bid have not been knowingly disclosed by the bidder and will not knowingly be disclosed by the bidder prior to opening, directly or indirectly, to any other bidder or to any competitor; and
(3) No attempt has been made or will be made by the bidder to induce any other person, partnership or corporation to submit or not to submit a bid for the purpose of restricting competition.
(b) A bid shall not be considered for award nor shall any award be made where (a) (1) (2) and (3) above have not been complied with; provided, however, that if in any case the bidder cannot make the foregoing certification, the bidder shall so state and shall furnish with the bid a signed statement which sets forth in detail the reasons therefor. Where (a) (1) (2) and (3) above have not been complied with, the bid shall not be considered for award nor shall any award be made unless the head of the purchasing unit of the political subdivision, public department, agency or official thereof to which the bid is made, or his designee, determines that such disclosure was not made for the purpose of restricting competition.

The fact that a bidder (a) has, published price lists, rates, or tariffs covering items being procured, (b) has informed prospective customers of proposed or pending publication of new or revised price lists for such items, or (c) has sold the same items to other customers at the same prices being bid, does not constitute, without more, a disclosure within the meaning subparagraph one (a).

2. Any bid hereafter made to any political subdivision of the state or any public department, agency or official thereof by a corporate bidder for work or services performed or to be performed or goods sold or to be sold, where competitive bidding is required by statute, rule, regulation, or local law, and where such bid contains the certification referred to in subdivision one of the section, shall be deemed to have been authorized by the board of directors of the bidder, and such authorization shall be deemed to include the signing and submission of the bid and the inclusion therein of the certificate as to non-collusion as the act and deed of the corporation.

_____

Signature (Authorized)

_____

Title

ATTACHMENT–E- CERTIFICATE OF COMPLIANCE WITH THE IRAN DIVESTMENT ACT OF 2012

NISKAYUNA CENTRAL SCHOOL DISTRICT
1239 VAN ANTWERP ROAD
NISKAYUNA, NEW YORK 12309

CERTIFICATION OF COMPLIANCE WITH THE IRAN DIVESTMENT ACT OF 2012
(NY GENERAL MUNICIPAL LAW SECTION 103-G AND NYS FINANCE LAW SECTION 165-a)

By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief that each bidder is not on the list created pursuant to paragraph (b) of subdivision 3 of section 165-a of the state finance law.

The undersigned, _____(Name of Authorized Bidder Signatory), make the foregoing certification, as the _____ (Title of Authorized Bidder Signatory), of _____(Name of Bidder), knowing that the Niskayuna Central School District, to which the accompanying bid or proposal is submitted, will rely upon my certification.

_____
(Signature)

Sworn to before me on this
_____day of _____, 20__.

_____
NOTARY PUBLIC

ATTACHMENT–F- REFERENCES

Minimum of five (5) references that you have worked with in the last five (5) years.

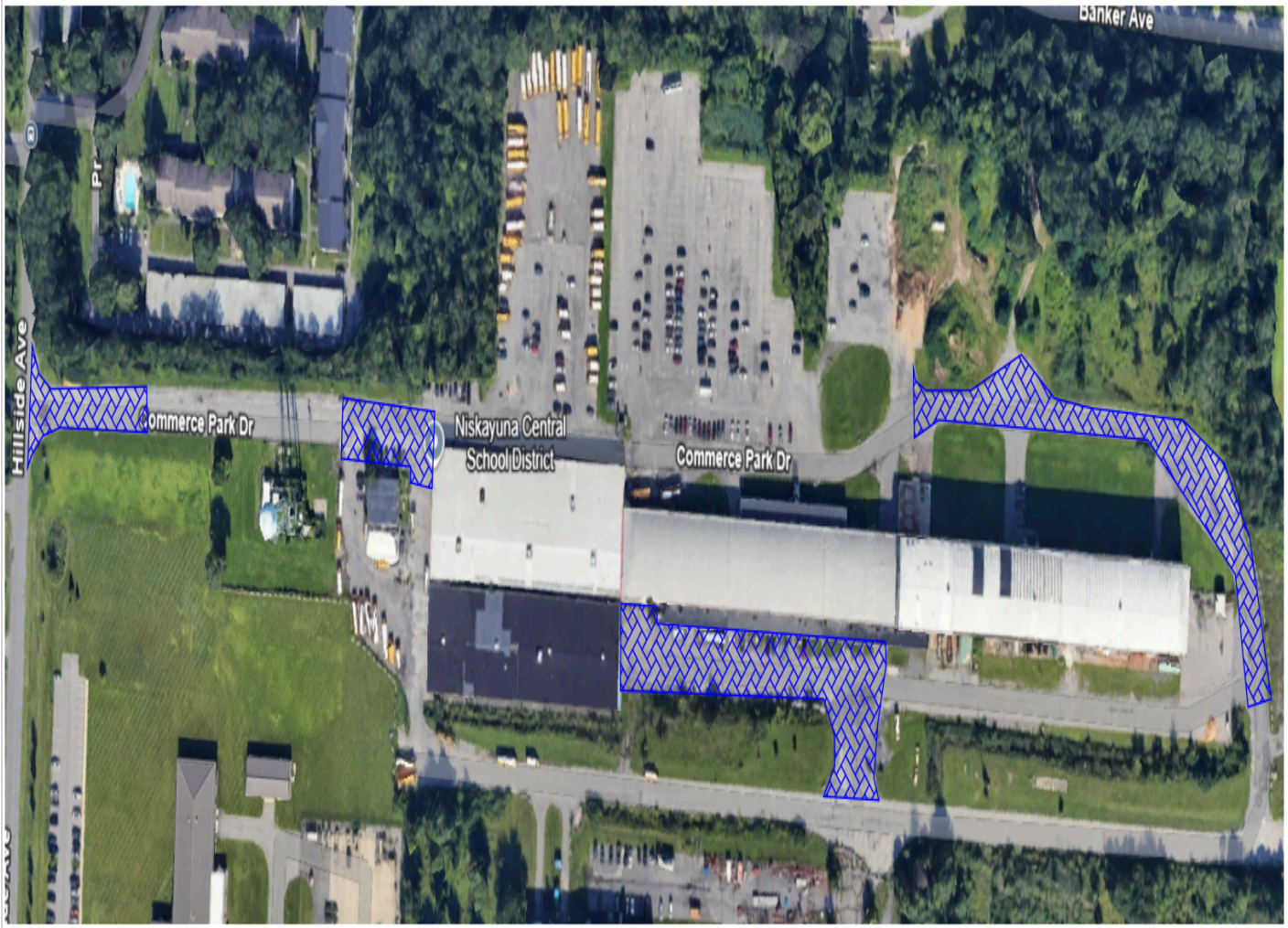
REFERENCE NO. 1
NAME:
ADDRESS:
CITY, STATE, ZIP:
TELEPHONE NO.
CONTACT:
REFERENCE NO. 2
NAME:
ADDRESS:
CITY, STATE, ZIP:
TELEPHONE NO.
CONTACT:
REFERENCE NO. 3
NAME:
ADDRESS:
CITY, STATE, ZIP:
TELEPHONE NO.
CONTACT:
REFERENCE NO. 4
NAME:
ADDRESS:
CITY, STATE, ZIP:
TELEPHONE NO.
CONTACT:
REFERENCE NO. 5
NAME:
ADDRESS:
CITY, STATE, ZIP:
TELEPHONE NO.
CONTACT:

Appendix A-1 (Niskayuna High School)

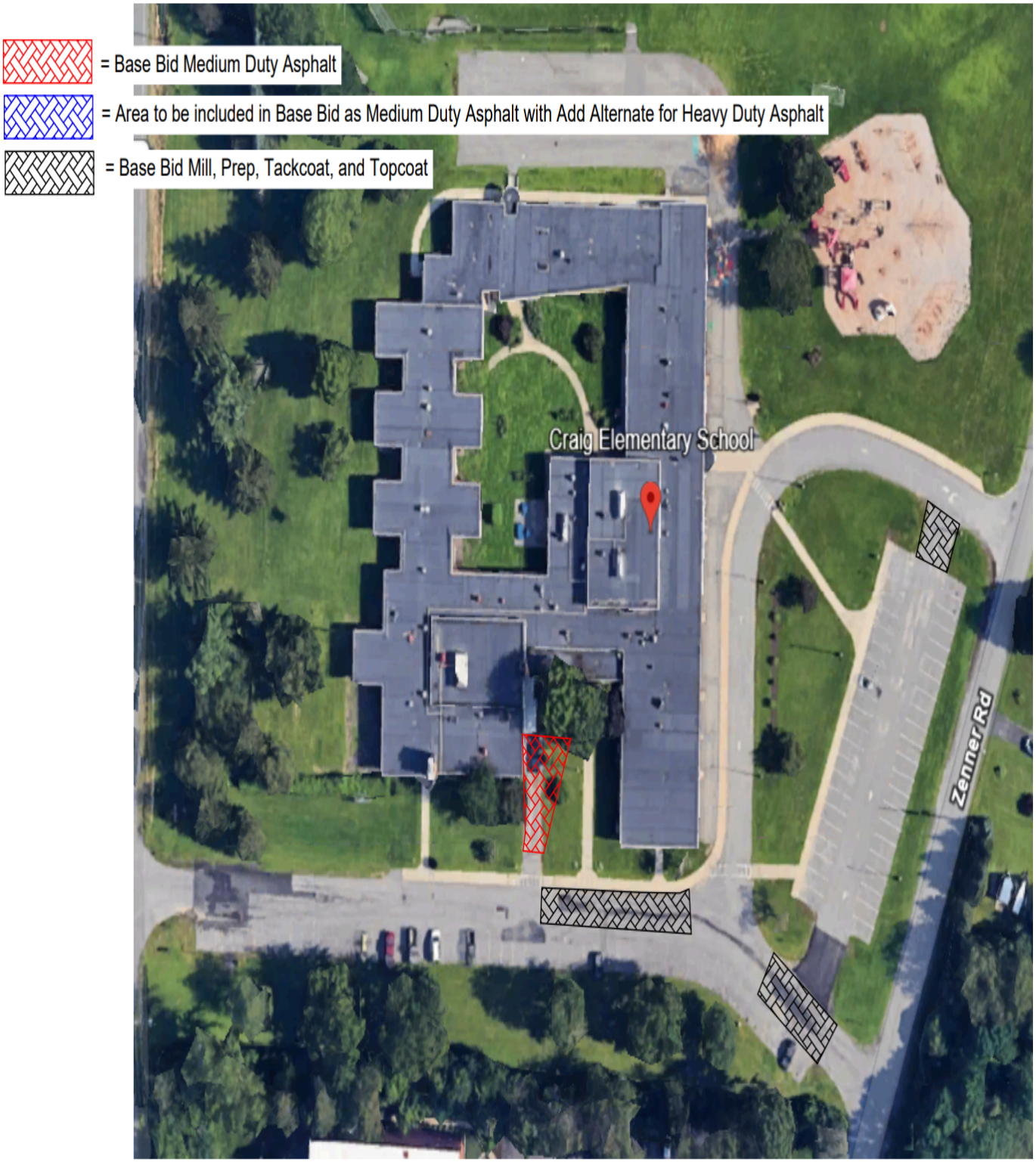
Appendix A-2 (Niskayuna CSD Transportation)

= Base Bid Medium Duty Asphalt

= Area to be included in Base Bid as Medium Duty Asphalt with Add Alternate for Heavy Duty Asphalt



Appendix A-3 (Craig Elementary School)



Appendix A-4 (Glencliff Elementary School)

Appendix A-5 (Hillside Elementary School)

= Base Bid Mill, Prep, Tackcoat, and Topcoat

= Base Bid Medium Duty Asphalt

= Area to be included in Base Bid as Medium Duty Asphalt. Add Alternate for Heavy Duty Asphalt

Appendix A-6 (Rosendale Elementary School)

= Base Bid Medium Duty Asphalt

Appendix B- Site Earthwork

SECTION 312201 - SITE EARTHWORK

1.0 PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

A. The extent of site earthwork and site grading is shown on the drawings.

B. Site earthwork includes, but is not limited to, the following:

1. Fill Materials
2. Source Quality Control
3. Shoring, Bracing and Supporting
4. Horizontal and Vertical Layout
5. Grading and Excavation
6. Compacted Backfill and Fill
7. Deep Ripping and Decompaction (NYS DEC)
8. Field Quality Control Testing and Inspection Services
9. Guarantee
10. Clean Up

C. Provide materials, labor, equipment and services required to accomplish related work in accordance with the drawings and specifications.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Section 023200 - Subsurface Investigation Information

B. Section 311201 - Site Preparation

C. Section 312300 - Building Earthwork

D. Section 312501 - Erosion, Sediment and Pollution Control

E. Section 334001 - Storm Drainage

1.3 REFERENCES

A. AASHTO T 180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54 kg (10-lb) Rammer and a 457 mm (18 in.) Drop; American Association of State Highway and Transportation Officials

B. ASTM C 136 - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.

C. ASTM D 75 - Practice for Sampling Aggregates

D. ASTM D 422 - Particle-Size Analysis of Soils (without Hydrometer Analysis)

E. ASTM D 698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3)

F. ASTM D 1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3)

G. ASTM D 2434 - Standard Test Method for Permeability of Granular Soils (Constant Head)

H. ASTM D 2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)

I. ASTM D 2922 - Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)

J. ASTM D 3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth)

K. ASTM D 6938 - In Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods

L. ASTM D 4318 - Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils

M. ASTM D 5084 - Standard Test Method for Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter.

N. Deep Ripping and Decompaction shall be per NYSDEC recommendations, latest edition

O. Occupational Health and Safety Administration Regulations and Standards

1.4 SUBMITTALS (See Section 311201, 1.5)

A. Furnish name of New York State licensed Land Surveyor to be employed and perform project layout. Obtain Architect's approval prior to performing work.

B Submit written report on NYS licensed Land Surveyor's letterhead verifying that professional's involvement with the project layout. The report shall briefly state the scope of services performed for the project, the dates work was accomplished, and an explanation of any adjustments required, specifically listing as-built and FIELD VERIFY requirements as noted in 3.2 of this specification section.

C. Provide Earthwork Contractor's experience requirements as indicated in 1.5, "Quality Assurance". Obtain Architect's approval prior to performing work.

D. Samples: 10 lb. samples of each type of fill; submit in airtight containers to testing laboratory.

E. Materials Sources: Submit name of imported materials source for each type of fill material.

F. Fill Composition Test Reports (Imported and Onsite): Provide results of laboratory tests (less than 2 months old) on proposed and actual materials used to determine acceptability. This shall include:

1. One optimum moisture-maximum density curve (Modified Proctor) for each soil/imported fill type as determined by ASTM D1557, Method A, latest issue.
2. Sieve Analysis - ASTM D422
3. Moisture Density Relationship - ASTM D1557, Method C / ASTM D698
4. Plasticity Index - ASTM D4318
5. Soundness Test - ASTM C88
6. Soil Classification - AASHTO and ASTM D2487

G. Compaction Density Test Report(s) required in Field Quality Control of this specification.

H. Contractor's NYS Licensed Professional Engineer's layout and design calculations of sheet piling and shoring required.

1.5 QUALITY ASSURANCE

A. Perform all site earthwork, site grading and excavation in compliance with requirements of governing authorities having jurisdiction, OSHA Standards, and "References" in this project specification.

B. The Owner will employ a licensed soil testing and inspection service for Field Quality Control Testing of materials. This Contractor will coordinate day to day scheduling with the Owner's testing agency for conformance with "Field Quality Control Testing and Inspection Services" in this project specification.

C. Layout Foreman Experience: The Earthwork Contractor must provide a competent layout foreman skilled in this specific type of layout/earthwork project. The layout/earthwork foreman shall have a minimum of four (4) similar projects completed within the last three (3) years. Provide a list of projects layout/earthwork foremen has completed including project name, address, Owner contact information and project scope of work.

1.6 JOB CONDITIONS

A. Job conditions in Section 311201 apply.

B. Provide sufficient quantities of fill materials to meet project schedule and requirements. When necessary, store materials on site in advance of need.

C. When fill materials need to be stored on site, locate stockpiles where directed by Owner.

1. Separate differing materials with dividers or stockpile separately to prevent intermixing.

2. Prevent contamination of material types.

3. Protect all stockpiles from erosion and deterioration of materials by covering with plastic sheets, tarps or as directed by the Architect.

D. Moisten or dry, fill or backfill materials, to the proper moisture content as determined in accordance with ASTM D1557, Method C in order to obtain proper compaction as indicated.

E. The Contractor shall familiarize him/herself with results and information contained within the Subsurface Investigation Report. These onsite soils are very sensitive to moisture and vibration. The Contractor shall take note and anticipate these soils will lose strength and mitigate in the presence of water and normal construction traffic and may turn into a "quick" condition (i.e. complete loss of shear strength and turning into a liquid-like condition). Achieving satisfactory compaction on these soils will be difficult, especially during wet conditions. This condition shall be taken into account within the Contractor's bid and schedule.

1.7 SUB-SURFACE SOIL INFORMATION

A. Refer to subsurface information elsewhere in the specifications. The geo-technical data on subsurface conditions is not intended as representation warranties of the continuity of such conditions between test pits or test borings made by the Owner and included in the specification. It is expressly understood that the Owner, Architect, Landscape Architect, and Consulting Engineers are not responsible for interpretations or conclusions drawn therefrom by the Contractor. The data is made available for the convenience of the Contractor.

B. Additional test borings and other exploratory operations may be made by the Contractor at no additional cost to the Owner, provided such operations are acceptable to the Architect and Owner. Coordinate test locations with Owner prior to starting work. Backfill immediately when completed and repair to satisfactory conditions as determined by the Architect. It is expressly understood that the Owner, Architect, Landscape Architect, and Consulting Engineers are not responsible for interpretations or conclusions drawn therefrom by the Contractor.

1.8 UNUSUAL SUBSURFACE CONDITIONS

A. Notify the Architect immediately in writing via email when unusual conditions are encountered during excavation, including, but not limited to: excessive flooding, miscellaneous structures, uncharted or unlocated utilities, foundations, bed rock, toxic and hazardous materials and chemicals (such as muriatic acid and atrizene), suspected archaeological artifacts, and unsatisfactory soil materials. Request clarification from the Owner's Representative or Architect before proceeding. Refer to paragraph 3.4 of this specification.

2.0 PART 2 -PRODUCTS

2.1 FILL MATERIALS

A. **Satisfactory General Earth Fill:**

1. To be used at least 5'-0" outside of structural elements and retaining walls.

2. Satisfactory general earth fill shall be satisfactory on-site subsoil, or hauled in off-site subsoil free of toxics, hazardous wastes and chemicals (such as, but not

limited to, atrizene and muriatic acid) that may be injurious to humans, animals and plant materials. Satisfactory earth fill shall also be free of rubbish, debris, wood, masonry, metal, frost, vegetation, organics or other deleterious material, which cannot be properly compacted. Use satisfactory general earth fill that is dry and free of clay. Rocks, gravel or soil shall not be larger than 3" in any dimension/direction.

3. Satisfactory earth fill materials are also defined as those complying with the American Association of State Highway Transportation Officials (AASHTO), M-145 soil classification Groups A-1, A-2-4, A-2-5, A-3 and Unified Soil Classification System GW, GP, GM, GC, SW, SP, SM, and SC (or a combination of these group symbols) as determined by ASTM D2487.

B. **Imported Granular Backfill:**

1. Imported granular backfill to be used for asphalt pavement subbase, concrete subbase, storm structures, storm pipes, water pipes, sanitary manholes, sanitary pipes, other structures, and where indicated on the drawings.

2. Backfill shall be run of crusher limestone meeting the following gradation as determined by ASTM-C136:

Standard Sieve Sizes	Percent Passing By Weight
2" or 50 mm	100%
3/4" or 19 mm	75 - 90%
1/4" or 6.3 mm	25 - 60%
#40 or 0.425 mm	5 - 40%
#200 or 0.075 mm	0 - 8%

3. Backfill shall be free of debris and deleterious materials. In no case shall the plasticity index exceed 5.0 or the percentage passing the 200 mesh sieve exceed 8%. The quality of the imported granular backfill shall be determined by the magnesium sulfate soundness test, if considered suspect by the Architect or Geotechnical Engineer. The maximum percent loss at four cycles by weight shall be 20.

C. **Imported Structural Fill:**

1. Imported structural fill to be used in areas of structural elements, for top eight (8") inches of design subgrade elevation for basketball courts and where noted on the drawings.

2. Shall be run-of-crusher gravel free from organic matter or other deleterious materials, meeting the material gradation requirements of Item 304.05 Sub-base Course, Type 4, of the NYSDOT's Standard Specifications for Construction Materials, as determined by ASTM C136.

Standard Sieve Sizes	Percent Passing By Weight
2" or 50 mm	100%
1/4" or 6.3 mm	25 - 60%
#40 or 0.425 mm	5 - 40%
#200 or 0.075 mm	0 - 8%

3. Imported structural fill shall be accepted on the basis of gradation, soundness, plasticity index and a well-defined Moisture-Density Relationship Curve. Imported structural fill to be placed within 8" of final exterior subgrade shall be subject to Soundness requirements. Soundness shall be less than 30% loss based on a four-cycle magnesium sulfate soundness test. Plasticity Index of that portion of fill material passing the No. 40 mesh sieve shall not exceed 5.0.

D. **Stormwater Management Trench (SMT) Backfill:**

1. Shall be No. 1 clean, washed, crushed stone meeting the following gradation as determined by ASTM C136:

Standard Sieve Size	Percent Passing By Weight
1" or 25.0 mm	100%
1/2" or 12.5 mm	90-100%
1/4" or 6.3 mm	0-15%

E. **Sand Filled Slotted Trenches Backfill:**

1. Shall be clean, coarse concrete sand, meeting the following gradation as determined by ASTM C136:

Standard Sieve Sizes	Percent Passing By Weight
3/8" or 9.5 mm	100%
#4 or 4.75 mm	75 - 90%
#16 or 1.18 mm	30 - 45%
#50 or 0.3 mm	5 - 10%
#100 or 0.15 mm	2 - 5%

2.2 UNSATISFACTORY SOIL MATERIALS

A. Shall be defined as soil with high percentage of decomposed rock, sand, organic matter or moisture laden clay to prevent adequate compaction. Also, soil with toxics, hazardous wastes and chemicals (such as atrizene and muriatic acid) that may be injurious to humans, animals and plant materials. Also, soil with significant quantities of rubbish, debris, wood, masonry, metal, frost or other deleterious material which, in the opinion of the Geotechnical Engineer, Owner's Representative, and Architect, cannot be properly compacted shall be classified as unsatisfactory.

B. Unsatisfactory soil materials are defined as those described in AASHTO M-145, soil classification, Groups A-2-6, A-2-7, A-4, A-5, A-6, and A-7 with CBR value less than 7.0. Also Unified Soil Classification System ML, CL, OL, MH, CH, OH as determined by ASTM D2487 (or a combination of these group symbols) with CBR value less than 7.0 in addition to peat (PT) and other highly organic soils, cobbles, boulders; and soil materials, of any classifications that have a moisture content at the time of compaction beyond the range of 1% below and 3% above the optimum moisture content of the soil material/backfill material, as determined by the Moisture Density Relationship test.

C. When unsatisfactory soil materials are encountered at proposed subgrades and other design elevations, proceed as described in Part 3 (Execution) of this Section.

D. When excavated materials become unsatisfactory as a direct result of the Contractor's work, this shall result in the rejection of the unsatisfactory soil materials by the Architect.

E. The use of slag (a byproduct of metal processing) or recycled/crushed concrete is unacceptable for any use on this project site.

2.3 SOURCE QUALITY CONTROL

A. See "Submittals" and "Quality Assurance" of this specification section for general requirements for testing and analysis of soil and fill materials.

B. Where fill materials are specified by reference to a specific standard, Contractor is responsible to test and analyze all samples for compliance before delivery to site.

C. If tests indicate materials do not meet specified requirements, change material and retest until approved.

2.4 SHORING, BRACING AND SUPPORTING

A. Shoring and bracing shall conform to the requirements of the Occupational Health and Safety Act.

B. Shoring and bracing shall be provided, placed and maintained at the locations and elevation that are necessary or required to: support and protect the sides and bottom of the excavation; prevent undue disturbance or weakening of the supporting materials below or beside the works; prevent movement of ground which may disturb or damage the work, adjacent pavements, property, structures or other works.

C. Provide materials for shoring, bracing and supporting, such as sheet piling, uprights, sheathing, stringers and cross-braces, in good serviceable condition. Use timbers that are sound and free of large or loose knots.

D. Provide design by Contractor's NYS Licensed Engineer, when shoring is required to perform work as shown on the drawings. Submit to Architect for approval.

E. Installation: Shoring and bracing shall be driven and placed so that it can be removed as backfilling takes place without damage to the pipeline or its appurtenances, structures, and without settlement of or damage to adjacent pavements and structures.

F. Removal: The Contractor shall remove all shoring and bracing as the excavation is backfilled, unless directed by the Architect to be left in place. The procedure for extracting shoring and bracing and placing backfill shall ensure the backfill load is applied gradually and disturbance of the works or foundation material is avoided.

G. Support all utilities as required by the municipality/utility owner.

3.0 PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify field conditions such as bench marks, monuments, topography, inverts, locations of utilities and property lines before proceeding. Notify the Architect immediately, in writing, of discrepancies prior to commencing work. Commencement of work will be construed as complete acceptance of survey and layout information. Additional costs resulting from failure to verify field conditions prior to commencing work shall be borne by this Contractor and at no additional cost to the Owner.

3.2 LAYOUT

A. Stake layout up to and including those elevations and dimensions specifically noted on drawings as "FIELD VERIFY" (FV). Ensure that the field elevation and dimension agrees with the elevation and dimension on the drawings before continuing. Notify the Architect immediately, in writing, of any discrepancies prior to commencing work. Additional costs resulting from failure to verify dimensions as noted on drawings shall be borne by this Contractor and at no additional cost to the Owner.

1. Assume sole responsibility for the accuracy of the layout work.

2. Run from point(s) of beginning (POB), base lines, property monuments, bench marks, iron survey pins, or other points given on the drawings.

3. Roads, Parking Areas, and Walks: Accurately locate and stake curblines, center line, swales, point of curve and tangency as necessary to accurately build.

4. Buildings and Site Features: Accurately locate and stake corners, offset corners, slopes, and center lines as necessary to accurately build.

5. Pipe Work: Accurately locate with laser.

B. Athletic Field Layout:

1. Provide accurate layout, alignment and dimensions for fields as shown on drawings and detailed by professional NYS Land Surveyor approved by the Architect.

2. Accurately locate and stake field corners, subsurface location monuments and backstops. Use Owner approved corner markers or stakes 2" x 2" x 2' long pressure treated wood with 16d common nail set flush in top of stake as metal detection element. Set top of athletic field location stakes flush with adjacent finish grades. Spray paint top of stake with day glow orange paint. Protect

during construction. Replace if removed at no additional cost to the Owner. Remove as directed by the Architect.

3. Temporarily stripe lawn athletic fields with field line marking mixture approved by Owner and correct surface high and low spots as described in Section 329201 prior to seeding or sodding.

3.3 GRADING

A. Cut and Fill: Presume the earthwork does **NOT** balance on site. Meet the grades shown on the drawings. Haul in or haul away as may be necessary. Provide earthwork calculations and provide for imported or exported material as part of bid. No additional costs will be allowed.

B. Grade areas as indicated, including transition areas, with uniform levels and slopes between finish elevations.

C. Cut to grades and profiles indicated.

D. Set grade stakes at fifty-foot (50') intervals, at corners, and breaks in grade.

E. Conduct operations to avoid ponding of water. Provide all pumping equipment, sump pits, and temporary diversion swales where and when necessary to continue work performance on schedule and as specified.

F. Shape subgrade surface of site elements to within 0.10' above or below required subgrade elevation, compacted as required and sloped to provide drainage as shown on the drawings. Notify Architect and Geo-Technical Engineer for subgrade review prior to continuing work.

G. Refer to Section 311201 for topsoil requirements.

3.4 EXCAVATION

A. Remove and legally dispose of material encountered to obtain required subgrade elevations, including pavement, obstructions visible on ground surface, underground structures and utilities indicated to be removed.

B. Sloping and Benching: Follow OSHA recommendations based on soil type to determine slope configurations. Slope the sides of excavations five (5') feet deep and over to the angle of repose of the material excavated; otherwise, shore, and brace where sloping is not possible either because of space restrictions or stability of material excavated.

C. Bracing and Shoring:

1. Provide bracing and shoring as required in excavations, to maintain sides and to protect structures from settlement.

2. Maintain shoring and bracing in excavations regardless of the time period excavations will be open. Carry down shoring and bracing as the excavation progresses.

3. Remove shoring and bracing before completion of backfilling except where required for structural support or slope stability.

4. The design, installation, and maintenance of such shoring and bracing required to accomplish the above purpose are the sole responsibility of the Contractor.

5. Follow OSHA recommendations for bracing and shoring.

6. Indemnify the Owner, the Landscape Architect, Architect, and the Consulting Engineers against any action arising from damage to existing structures, utilities or injury to persons resulting from the Contractor's actions or failure to act, in carrying out the intent of this section.

D. Protections: Protect structures, vegetation, utilities, sidewalks, pavements, and other facilities in areas of work. Barricade and secure open excavations and provide warning lights/signage from dusk to dawn each day.

E. Extent of Excavations: Excavate for structures to elevations and dimensions shown, extending excavation a sufficient distance to permit placing and removal of other work and for review. Trim bottom to required lines and grades to provide solid base to receive concrete or imported granular backfill material.

F. Unsatisfactory Soil Materials: When unsatisfactory soil materials, as defined in this specification, are encountered at design elevations, immediately notify the Architect in writing by email or other equally expeditious means. Continue as directed by the Architect and Geo-Technical Engineer. When, in the sole opinion of the Architect, conditions are not a result of Contractor's negligence, additional excavation may be directed by the Architect and paid for as a Change Order on a unit price or negotiated price basis in accordance with Contract Documents. This additional excavation shall be measured each day and verified by the Owner's representative and the Contractor's Superintendent. A daily written accounting, attested by both parties, shall be maintained with copies daily to the Architect. No claim for extra compensation will be considered except through the procedure outlined above. Assume **500 c.y.** of undercutting and removals, placement of soil stabilization fabric (SSF) and providing and compacting to 95% density imported granular backfill material in Base Bid. Unit price provided shall be utilized to add to or delete from this assumed quantity to account for actual quantity encountered.

G. Unauthorized and Over Excavation: Consists of removal of materials beyond required subgrade elevations or dimensions without specific direction of the Architect or Geotechnical Engineer. Unauthorized or over excavation, as well as remedial work directed by the Architect or Geotechnical Engineer, shall be at Contractor's expense. Fill of unauthorized excavations shall be as follows (all at no additional cost to the Owner):

1. Fill the voids created by the removal of materials beyond indicated subgrade elevations with lean concrete (2000 psi). Or;

2. Extending the indicated bottom elevation of the concrete footing to the lower elevation. Or;

3. Adding imported granular backfill material compacted to 95% density to proper design elevation and layout as directed by the Architect. Testing agency to perform compaction testing prior to proceeding.

H. Dewatering:

1. Contractor shall anticipate seasonal variations of soil moisture content and groundwater in the Base Bid as verified by site investigation indicated in Section 311201.

2. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.

   a. Surface and ground water shall be intercepted and removed before entering excavations. All necessary measures shall be taken. Earth dikes, ditches, or other devices, if required, shall be constructed to prevent such flows.

3. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.

   a. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.

   b. Remove water to prevent softening of foundation bottoms, undercutting footings, and soil changes detrimental to stability of subgrades and foundations.

   c. Provide and maintain pumps, sumps, suction and discharge lines, and other dewatering system components necessary to convey water away from excavations.

4. The Contractor shall at all times provide and maintain proper and satisfactory means and devices (i.e. ditches, temporary pipes, pumps, and/or other temporary construction) for the removal of all water entering the excavations. Water shall be removed as fast as it may collect, in such manner that shall not interfere with the execution of the work or in the proper placing of pipe, structures or other work.

5. Provide and operate sufficient pumping machinery to keep excavated parts free of water. Dig sump pits when necessary into which the excavation shall be drained. Take care and proper precautions in the use of pumps so that in no case will foundations, footings and utilities already in place or existing foundations, footings of adjacent structures or utilities be undermined or disturbed, and erosion occur due to pumping.

6. Do not discharge pumped materials into any body of water, wetland, adjacent property, roadside swales, subsurface storm systems, or any infiltration practices as determined by the Architect. Provide temporary sediment basins, traps, and filter bags for pumped water.

7. Adjust, repair, replace, or clean all work, surfaces, and property, which may have been affected as a result of any dewatering operation.

I. Prepare subgrade and twelve (12") inches of existing sub-soils below subgrade elevations in excavated areas to minimum density of 95% in structure, pavement, utility areas, trenches, and 90% under lawn non-paved areas.

J. Rock and Rock Excavation:

1. Rock Definition: Shall be defined as solid hard material located in ledges, bedded aggregate deposits and unstratified masses, and all-natural conglomerate deposits so firmly cemented as to present all the characteristics of solid rock, which must be removed by pneumatic hammers. Rock does not include shale, slate, soft sandstone, hardpan, masonry or concrete rubble, boulders less than three (3) cubic yards, such other rock material which is decomposed, stratified, weathered or shattered, or any material capable of being removed by a well maintained Caterpillar 225 power shovel, D8 Dozer with Ripper, or Architect approved equivalent.

2. Rock Excavation Administrative Procedures: When encountered, shall be stockpiled for measurement before removal and paid for on a unit price basis in accordance with Contract Documents. Notify Architect immediately of rock discovery prior to performing any rock removal or continued excavation. Rock excavations as defined shall be measured each day and verified by the Owner's designated representative and the Contractor's on-site Superintendent. A daily written accounting, attested to by both parties, shall be maintained with copies daily to the Architect. No claim for extra compensation will be considered except through the procedure outlined above. Contractor to assume **100 c.y.** of rock excavation and removal in Base Bid. Unit price provided shall be utilized to add to or deduct from this assumed quantity to account for actual quantity encountered.

3. Rock Excavation Removal Procedures: Includes removal and disposal of rock. Remove rock to lines and grades indicated to permit installation of permanent construction without exceeding the following dimensions.

   a. 24 inches outside of concrete forms other than at footings.

   b. 12 inches outside of concrete forms at footings.

   c. 6 inches outside of minimum required dimensions of concrete cast against grade.

   d. Outside dimensions of concrete walls indicated to be cast against rock without forms or exterior waterproofing treatments.

   e. 8 inches beneath bottom of concrete slabs-on-grade.

   f. 6 inches beneath pipe in trenches, and the greater of 24 inches wider than pipe or 42 inches wide.

4. Any over excavation due to rock excavation and removal shall be handled as directed under "Over Excavation" in this Section.

5. Contractor has the option to remove existing rock and dispose off-site or crush existing rock and use as satisfactory general earth fill when it meets gradation noted in 312201 for imported granular backfill material.

3.5 BACKFILL AND FILL

A. Preparation of Ground Surface to Receive Fill: Remove vegetation, organic materials, obstructions, and deleterious materials from ground surface prior to placement of fills. Break up and remove existing foundations, concrete slabs, abandoned utilities, and site features. Plow, strip, roughen, or break up slopes steeper than 1 vertical to 4 horizontal so that fill material will bond to existing surface.

B. Execute these steps when the existing ground surface, after removal of the above unsatisfactory soil materials, has a density less than that specified under "Compaction" for the particular area classification: Break up the ground surface, pulverize, moisture-condition to the optimum moisture content, and compact to the required depth and percentage of maximum density.

C In no case shall fill be placed on a subgrade that is wet, muddy, rutted, spongy, frozen or that contains frost or that has not been tested and approved to achieve satisfactory results.

D. Areas to receive any fill or backfill should be properly prepared, proof rolled, tested per "Field Quality Control" within this specification, inspected and approved by the Architect and Geo-Technical Engineer prior to the placement of fill.

E. Following grade approval by the Architect and Geo-Technical Engineer, place imported granular backfill, imported structural fill and satisfactory general earth fill material in layers not more than eight (8") inches in loose depth in a manner to minimize segregation. The fill shall be placed in nearly horizontal lifts commencing at the lowest fill area elevation and proceeding with each lift upward and outward from the lower lift.

F. Moisture Content: Contractor shall anticipate seasonal variations of all soils (on site or imported) and imported fills moisture content in the Base Bid and timing required for such shall be included in the project schedule. The moisture content of the materials shall be adjusted prior to application of compaction such that it is no more than 1% below or 3% above the optimum moisture content of the material. Apply water to surface, subgrade or layers of soil material when required to achieve compaction densities stated below. Remove and replace, or scarify and air dry, soils or imported materials that is too wet to permit compaction to specified density.

G. Compaction:

1. Compact each eight (8") inch layer of fill and backfill materials.

2. Compact fill and backfill material below subgrade for structures, slabs, pavements, and utilities to minimum 95% of optimum in place density as determined by ASTM D1557, Modified Proctor.

3. Compact fill material below subgrade for lawns or unpaved areas to minimum 90% of optimum in place density as determined by ASTM D1557, Modified Proctor.

H. Equipment:

1. Use sheepsfoot rollers, pneumatic tired rollers, drum rollers, vibrating tampers, and other compaction equipment capable of obtaining the required density throughout the entire layer being compacted.

2. Use power-driven hand tampers for compacting materials adjacent to site structures.

3. For utility trenches or other confined areas, small compaction equipment may be necessary such as a vibratory plate, jumping jack or walk-behind vibratory roller. In these cases, lift heights no greater than six (6") inches should be maintained.

I. Reconditioning Compacted Areas: Where previously completed compacted areas are disturbed by subsequent construction operations (by any Contractor), traffic or adverse weather, scarify and dry out the surface, regrade, and recompact to the required density prior to further construction at no additional cost to the Owner. Use hand tamping for recompaction over underground utilities and trenches.

3.6 DEEP RIPPING AND DECOMPACTION

A. Contractor to provide Deep Ripping and Decompaction and effectively fracture (vertically and laterally) through the thickness of the physically compressed subsoil material, restoring soil porosity, and permeability and aiding infiltration to help reduce runoff to compacted areas of the construction site.

B. Each mitigation area should have minimal above-and-below ground obstruction for the easy avoidance and maneuvering of a large tractor and ripping/decompacting impellents. Coordinate with Architect and Owner.

C. Perform "poor man's Atterberg field test" for soil plasticity for quick, on-site determination of whether or not the moisture level of the affected soil material is low enough for:

1. Effective deep ripping of subsoil

2. Re-spreading of topsoil in a friable state

3. Final decompaction (deep subsoiling)

D. Guidance: Implement the Deep Ripping and Decompaction (deep subsoiling) in a two-phase process:

1. Deep rip the affected thickness of exposed subsoil material, aggressively fracturing it before the protected topsoil is reapplied on the site.

2. Decompact (deep subsoil), simultaneously through the restored topsoil layer and the upper half of the affected subsoil.

3. Prior to deep ripping and decompaction the site, all construction activity, including construction equipment and material storage, site cleanup and trafficking, should be finished; and the site closed off to further disturbance. Likewise, once the practice is underway and the area's soil permeability and rainfall infiltration are being restored, limit all further traffic to permanent travel lanes.

E. Implements: Use a "heavy-duty" agricultural-grade, deep ripper of the first phase: the lateral and vertical fracturing of the mass of exposed and compressed subsoil, down and through, to the bottom of impact, prior to the replacement of the topsoil layer. (Any oversized rocks which are uplifted to the subsoil surface during the deep ripping phase are picked and removed.) The decompaction (deep subsoiling) of Phase 2 is conducted with the heavy-duty version of the deep subsoiler. Minimize the inversion of the subsoil and topsoil layers while laterally and vertically fracturing the upper half of the previously ripped subsoil layer and all of the topsoil layer by delivering a momentary, wave-like "lifting and shattering" action up through the soil layers.

F. Pulling-Power of Equipment: Use the following rule of thumb for tractor horsepower (hp) whenever deep ripping and decompacting a significantly impacted site: For both types of implement, have at least 40 hp of tractor pull available for each mounted shank/leg.

G. Adapt the ripper or the deep subsoiler for pulling with its frame only a few inches above surface, while the shanks or legs, fracture the soil material 20-24 inches deep.

1. Large, Unobstructed Areas: For larger easy areas, use the standard patterns of movement:

   a. The first series (pattern) of passes is applied lengthwise, parallel with the longest spread of the site; gradually progressing across the site's width, with each successive pass.
   b. The second series runs obliquely, crossing the first series at an angle of about 45 degrees.
   c. The third series runs at right angle (or 90 degrees), to the first series to complete the fracturing and shattering on severely compacted site, and avoid leaving large unbroken blocks of compressed soil material. (In certain instances, the third series may be optional, depending on how thoroughly the first two series loosen the material and eliminate large chunks/blocks of material as verified by tests with a ¾-inch cone penetometer.)

2. Roadways and Access Routes: In long corridors of limited width and less maneuverability than larger site e.g.: along compacted areas used as temporary construction access, a modified series of pattern passes are used.

   a. First, apply the same initial lengthwise, parallel series of passes described above.

b. A second series of passes makes a broad "S" shaped pattern of rips, continually and gradually alternating the "S" curves between opposite edges inside the compacted corridor.

c. The third and final series again uses the broad, altering S pattern, but it is "flip-flopped" to continually cross the previous S pattern along the corridors centerline. This final series of the S pattern curves back along the edge areas skipped by the second series.

3.7 FIELD QUALITY CONTROL TESTING AND INSPECTION SERVICES

A. Soil Testing Service/Geo-Technical Engineer must inspect and approve density tests, retesting, and proof rolling of subgrades, as described in this section, before further construction work is performed thereon.

B. Perform compaction density testing on compacted fill and imported granular base course in accordance with ASTM D1556, ASTM D1557, ASTM D2922, and D3017.

C. In place density testing should be performed at a frequency of one (1) test per 500 square feet per lift in smaller open areas, one (1) test per 2,500 square feet per lift in larger open areas, and one (1) test per 25 feet per lift in confined areas and utility trenches.

D. When the test results indicate that insufficient compaction has been obtained in any layer, the Contractor shall take action to modify or alter the moisture content in the soil, to provide additional compaction and testing or otherwise to increase the in-place soil density. If the Contractor cannot obtain satisfactory compaction due to material properties, the Contractor shall remove the unsatisfactory material and replace with new material at no additional cost to the Owner.

E. Materials contaminated by mud, debris, organics, frost, and/or other deleterious materials shall be removed and replaced with uncontaminated specified material.

F. No fill or backfill shall be placed over an area or lift of fill that has not be tested and achieved satisfactory results.

G. Proof Rolling: On pavement subgrades, in cut areas only, unless otherwise directed by the Architect, the only testing required will be the proof rolling as described below:

1. Provide Soil Testing Service/Geo-Technical Engineer with 48-hour advance notification when subgrades are ready to proof roll.

2. Proof Roll the prepared pavement subgrade surface with fully loaded ten (10 c.y.) cubic yard earth moving truck or, in the opinion of the Architect/Geo-Technical Engineer, using a 5-ton smooth drum roller making at least 3 overlapping passes, in each of 2 perpendicular directions, on static mode at a speed of 1 to 4 feet/second. Check for unstable areas. Subgrades that rut, pump or deflect under the truck's tires may be judged unstable by the Architect/Geo-Technical Engineer. These areas may require further compaction or undercutting as directed by the Soil Testing Service/Geo-Technical Engineer.

3.8 GUARANTEE

A. Guarantee concrete slabs, pavements, pavers, curbs, retaining walls, stairs, trenches, utilities, flagpoles, structures, lawns, and plant materials free from settlement for a period of one (1) year from the date given on the certificate of substantial completion or final punch list when satisfactorily completed and accepted by the Architect, whichever is later.

B. Repair to proper grade and alignment any and all settlement of concrete slabs, pavements, pavers, curbs, retaining walls, stairs, trenches, utilities, flagpoles, structures, lawns and plant materials adversely affected by settlement within one (1) year after date given on the certificate of substantial completion or final punch list when satisfactorily completed and accepted by the Architect, whichever is later, at no additional expense to the Owner. In damaged compacted areas, scarify the surface, re-shape, and compact to required density prior to further construction.

C. All repairs/corrections shall be completed to the satisfaction of the Owner within seven (7) days of written notice by the Owner.

3.9 CLEAN UP

During the contract and at intervals as directed by the Architect and as earthwork is completed, clear the site of surplus earth, large surface stones, debris, tools and equipment. Leave the site in a clean, safe, well draining, and neat condition.

Appendix C- Site Preparation

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

The general provisions of the Contract, including General and Supplementary Conditions and General Requirements (if any), apply to the work specified in Division 31, 32 and 33.

1.2 DESCRIPTION OF WORK

A. The extent of site preparation is shown on the drawings.

B. Site preparation work includes, but is not limited to, the following:

1. Site investigation and underground utility identification
2. Protection of existing trees, shrubs, ground covers and lawns to remain
3. Topsoil stripping and stockpiling on site (See Section 329201)
4. Site clearing and removals
5. Temporary construction roads and staging areas
6. Temporary construction fences and gates
7. Asphalt milling
8. Saw cutting
9. Relocations/salvaged materials
10. Clean up

C. Provide materials, labor, equipment, and services required to accomplish related work in accordance with the drawings and specifications.

1.3 RELATED WORK SPECIFIED ELSEWHERE

A. Section 015000 - Temporary Facilities and Controls

B. Section 312201 - Site Earthwork

C. Section 329201 - Lawns

D. Section 334001 - Storm Drainage

1.4 SITE INVESTIGATION

A. The Contractor shall visit the site before bidding, inform and familiarize themselves of all site conditions, including but not limited to, site topsoil, sub-soil, rock, subsurface and groundwater conditions affecting proposed work. No allowance or additional cost will be made in the work of this contract for failing to determine overall project site conditions.

B. Verify locations and protect utilities and structures, whether or not shown on the drawings. Existing utilities and structures shown on the drawings are for the Contractor's convenience and locations are not guaranteed.

C. Verify survey information given on drawings. Walk the site with the Owner's Facilities Management Personnel to discuss approximate locations of reputed utilities not shown on the survey, prior to performing work. Notify the Architect of any and all discrepancies prior to commencing work. Commencement of work will be construed as complete acceptance of survey information.

D. Locate and protect from disturbance existing survey monuments, pins, markers and benchmarks whether or not shown on drawings. When any disturbance or damage occurs, notify Architect in writing within 24 hours. Describe nature of disturbance or damage and date first occurred. Provide copies to applicable government and municipal agencies. Pay costs for restoring monument to satisfaction of said agencies, at no additional expense to the Owner.

1.5 JOB CONDITIONS

A. The terms "Architect" and "Landscape Architect" for Divisions 31, 32 and 33 work shall mean Appel Osborne Landscape Architecture, 102 West Division St., Suite 100, Syracuse, NY 13204, Tel. (315) 476-1022 or other representative(s) that King + King Architects may determine.

B. Examine drawings and specifications for the entire project. Become familiar with the scope and sequencing of work required. Coordinate and cooperate with other Contractors and trades working in and adjacent to the project.

C. Examine work prepared prior to this contract. Commencement of work will be construed as complete acceptance of all preparatory work by others.

D. Obtain and pay for permits required by authorities. Perform the work in compliance with applicable standards, codes and requirements of governing authorities having jurisdiction.

E. Safety is the sole responsibility of the Contractor.

F. Burning on site and use of explosives are not permitted.

G. Responsibility for existing utilities:

1. Contact Dig Safely New York at least two (2) full working days, and not more than ten (10) working days, before digging begins or as required by latest state law. Locate by hand excavation and provide protection from damage to existing utilities to remain in the area. (Tel. 811)

2. Existing utilities encountered within excavated areas shall be supported, blocked and/or braced in a manner approved by the owner of the utility. Leave supports in place to the extent required by the owner of the utility.

3. Should uncharted or incorrectly charted utilities be encountered, notify the Architect immediately for directions as to procedure.

4. Do not break utility connections without providing temporary services as acceptable to the Architect and the owner of the utility.

5. Repair and pay for damages to existing utilities as directed by utility Owner at no additional cost to the Owner.

6. Cap ends of utilities to be abandoned or removed in accordance with regulatory agencies and as directed by the Architect.

H. Provide protections and conduct operations to prevent injury and damage to persons, work of other Contractors, existing items to remain, structures, pavements, lawns, and adjacent properties.

I. Restore work damaged by this Contractor inside and outside the contract limits to the condition existing prior to the start of work, unless otherwise directed, to the satisfaction of the Architect at no additional cost to the Owner.

J. Vehicular and pedestrian traffic control:

1. Maintain vehicular and pedestrian traffic during construction activities.

2. Provide alternate routes and traffic control around closed and obstructed traffic ways as required by governing regulations or the Owner.

3. Provide temporary fencing, flagpersons, barricades, warning signs, and warning lights or other measures to protect the public and cause the least interruption of work.

K. Field Measurements: Take necessary field horizontal and vertical measurements required in order to perform the work and design intent shown on the drawings, and outlined in the specifications. Assume complete responsibility for accuracy of such measurements and dimensions.

L. Removal of spoils, dust control, debris, snow and clean up:

1. Control air pollution caused by dust and dirt; comply with governing regulations. Water to control dust when necessary and as directed by the Architect or Certified Erosion Control Specialist. Provide water sprinkling materials, equipment and labor to prevent the nuisance of dust to the surrounding areas.

2. Legally dispose of removed and demolished items, including trash and debris, off the Owner's property, at a licensed disposal facility having adequate capacity to accept the project's waste.

3. Burning of combustible materials on the site is not permitted.

4. During the contract and at intervals as directed by the Architect, clear the site of extraneous materials, rubbish, construction waste, and debris. Leave the site in a clean, safe, neat, well-draining condition.

5. Soil and Snow Removal: Sweep roads, access ways, paved areas, and parking areas where soil, mud and debris have dropped or tracked from construction and delivery vehicles on a daily basis and as directed by the Architect or Certified

Erosion Control Specialist. Remove snow and ice from roads, access ways, paved areas and parking areas utilized for site construction purposes.

6. Spoils: Remove from site and dispose when not required for fill or determined to be unsatisfactory soil material per Section 312201 - Site Earthwork.

M. Construction Review - General: Site visits will be made by the Architect to observe construction conformance to drawings and specifications. The occasional site visits by the Architect shall not be construed as supervision of construction or make them responsible for the safety programs and precautions, including but not limited to: the safe access, visit, use, work travel, or occupancy of any person. Site visits shall not make the Architect responsible for means, methods, techniques, sequences or procedures of construction selected by the Construction Manager, Contractor or his Sub-contractors.

N. Site Complexity: The existing site will be intensively developed. Because of the construction and resulting graphic complexity, it is impractical to show every detail. However, the general design intent is clearly shown and shall be applied to individual conditions not specifically shown as directed by the Architect and at no additional cost to the Owner.

O. Asbestos, Toxic and Hazardous Materials: The Division 31, 32 and 33 site work contract does not include testing for, handling or removal of hazardous materials such as, but not limited to: asbestos, fuel, oil, PCB's, or other toxic or hazardous waste materials as identified by the EPA and/or NYSDEC. If any such materials are encountered during any part of the site work, the Contractor is responsible for identifying potential hazardous material and immediately notify all governing agencies having jurisdiction as required by law. Also, within one (1) hour of discovery notify the Architect, Landscape Architect, Consultants, and Owner. The Owner shall provide testing and removal by others, under separate contract. The Contractor shall recommence work under this contract when the Owner provides written certification that remediation is complete per governing agency. The Contractor shall not be penalized for any delays caused by the hazardous testing and removal, unless such hazardous material incident was a result of Contractor's operations. The Contractor shall indemnify and hold harmless the Architect, Landscape Architect, Consultants and Owner, agents, and employees from and against all claims, damages, losses and expenses, direct and indirect or consequential damages, including but not limited to fees and charges of attorneys and court and arbitration costs, arising out of or resulting from the performance of the work by the Architect, Landscape Architect, Consultants and Owner, or claims against the Architect, Landscape Architect, Consultants and Owner arising from the work of others, related to hazardous waste.

The above indemnification provision extends to claims against the Architect, Landscape Architect, Consultants and Owner which arise out of, are related to, or are based upon, the dispersal, discharge, escape, release or saturation of smoke, vapors, soot, fumes, acids, alkalis, toxic chemicals, or pollutant in or into the atmosphere, or on, onto, upon, in or into the surface or subsurface soil, water or water courses, objects, or any tangible or intangible matter, whether sudden or not.

Should the hazardous material incident be the result of the Contractor's operations, the Contractor shall be responsible for all costs associated with the discovery and remediation of such hazardous material such as, but not limited to: testing, consultant

fees, damage, loss, fees and charges of attorneys, court and arbitration costs, claims by other contractors, direct and indirect or consequential damages.

P. Salvageable Items: Remove at any time after work starts. Storage or sale on site of salvageable and removed items is not permitted. Do not remove topsoil from site without written permission from the Owner.

Q. SUBMITTALS/PROCEDURES: Submit Tests, Shop Drawings, Material Certificates (showing content/mechanical analysis) and Manufacturer's Product Data (MPD) to Architect for review a minimum of two (2) weeks prior to installation.

1. Provide a minimum of five (5) copies from material producer or laboratory, stamped as checked and approved by the Contractor before submittal to the Architect or as otherwise indicated in Division 1. (Note: Electronic submittal process may be acceptable when approved by the Owner and Architect.)

2. Refer to individual specification sections for a list of required submittals.

3. For each material certificate required, provide certification by an Architect approved independent testing laboratory which gives analysis results and states that the material complies with or is superior to the specified requirements.

1.6 SUBMITTALS: (See 1.5, above)

A. Provide photographic documentation. Photographically document existing features which, may be affected by the construction, inside and outside the contract limit line. Existing features include, but are not limited to: structures, pavements, curbs, utilities, lawns and vegetation, especially individual trees which are over six (6") inches in diameter and noted to remain on the drawings. Also, particular attention shall be paid to the construction access, stockpile and haul road areas. Distribute a copy of the photographic documentation (digital format) to the Owner and Architect prior to the start of construction.

B. Provide material certificate showing content/mechanical analysis for staging area/construction road stone.

C. Temporary Chain Link Fence and Gates Manufacturer's Product Data (MPD).

2.0 PART 2 - PRODUCTS

2.1 TEMPORARY CHAIN LINK FENCE AND GATES

A. Shall be new or good quality 6'-0" height galvanized chain link fence and gates.

B. Materials and layout shall be as detailed on the drawings and as directed by the Owner.

2.2 PLASTIC FENCE

A. Shall be new or good quality used 4’-0” high heavy duty orange plastic fence NC450.

B. Posts shall be new or good quality U-channel posts to hold plastic fence.

2.3 OTHER PROTECTIVE DEVICES

A. Shall include, but not be limited to; wood planks, rubber mats, barriers, lights, barricades, coverings, traffic controls, steel plates, and other temporary protections.

B. Contractor to provide all necessary protections required by Occupational Safety and Health Administration (OSHA).

2.4 STAGING AREA/CONSTRUCTION ROADS

A. Staging Area/Construction Road Stone: Shall be run of crusher limestone meeting the following gradation as determined by ASTM-C136:

Standard Sieve Size	Percent Passing By Weight
2" or 50 mm	100%
3/4" or 19 mm	75 - 90%
1/4" or 6.3 mm	30 - 65%
#40 or 425 mm	5 - 40%
#200 or 75 mm	0 - 8%

B. Soil Stabilization Fabric: Shall be a commercially manufactured, UV stabilized low clogging, high flow, woven geotextile. Standard of quality shall be Mirafi 500X, as manufactured by NICOLON/MIRAFI GROUP, 3500 Parkway Lane, Norcross, Georgia (Tel. 1-800-234-0484) or Architect approved equal.

3.0 PART 3 - EXECUTION

3.1 PROTECT EXISTING VEGETATION TO REMAIN

A. Prior to commencing site preparation work, notify Architect, and meet on site to locate existing trees, lawns and vegetation which are to remain.

B. Protect and keep existing vegetation to remain free from physical damage. Keep in a healthy, vigorous growing condition for the entire construction period as follows:

1. Keep site disturbance and staging limits to a minimum. Obtain approval from Owner for material and equipment storage areas. Limit access points and routes to the project site. Coordinate site access with other trades and contractors on the work site.

2. Groups of Trees and Vegetation: Place orange plastic construction fencing around drip line(s) of trees and plant beds as detailed or directed by the Architect. Do not store materials, run equipment, park vehicles, or otherwise disturb area within the drip line (full canopy of tree) or in plant beds.

3. Specimen and Individual Trees: Protect each as noted and detailed. Do not store materials, run equipment, park vehicles or otherwise disturb area within the drip line (full canopy of tree).

C. Rejuvenate damaged vegetation by pruning watering, fertilizing, staking and other methods as directed by the Architect. Replace trees and other vegetation that cannot be restored to full growth with comparable size, quantity, quality and species as determined by the Architect.

D. Repair lawns disturbed due to construction operations outside the grading limits, as specified and directed by the Architect. Provide screened topsoil, seed, and mulch over damaged lawn areas, access ways or where tire rutting occurred.

3.2 TOPSOIL STRIPPING AND STOCKPILING ON SITE

A. Strip full depth of existing topsoil from areas to be regraded, paved, or otherwise built upon. When amount of available topsoil exceeds what is indicated in geo-tech/boring report, on site test pits, or Contractor assumed depth, continue to remove all topsoil and lower the paved or built element subgrade. Place additional satisfactory earth fill in uniform depths as indicated in the Site Earthwork Section 312201. Maintain finished grades as shown on the drawings. This work shall be done at no additional cost to the Owner.

B. Minimum quantity of topsoil shall be as needed to provide four (4") inches settled depth on lawn areas. Verify quality and quantity. Supply imported topsoil when amount of available topsoil meeting above requirements is less than what is required for the proposed lawn areas. See Section 329201 for imported topsoil requirements.

C. When amount of available topsoil meeting above requirements exceeds what is required for the proposed lawn areas, lower the lawn subgrade and place additional topsoil in a uniform depth as directed by the Architect. Maintain finish grades as shown on the drawings. This work shall be performed and supplied at no additional cost to the Owner.

D. Topsoil shall be well drained, homogeneous texture soil of uniform grade, without the admixture of subsoil material. Topsoil shall be free of dense material, hardpan, and stone over three-quarters (3/4") inch in diameter, and other objectionable foreign material including, but not limited to, brick, concrete, asphalt, glass, nails, screws, toxins, hazardous wastes and chemicals (such as, but not limited to, atrizene and muriatic acid) that may be injurious to humans, animals and plant materials.

E. Stockpile on site where shown on the drawings or as directed by the Owner. Provide all hauling as necessary. Do not mix topsoil stockpiles with other materials. Do not remove topsoil from site without written permission by the Owner. Stabilize and maintain all stockpiles as specified.

3.3 SITE CLEARING AND REMOVALS

A. Items and materials noted to be removed shall become the property of the Contractor, unless otherwise noted. Obtain Owner's approval prior to removal off site or for relocation of salvaged material on site. Remove material off site and legally dispose of it. Backfill voids with imported granular backfill, placed in eight (8") inch layers compacted to 95% maximum density.

B. Remove physical elements above and below grade as shown and which interfere with proposed construction. Physical elements include but are not limited to: trees, root

systems, shrubs, vines, grass, vegetation, pavements, walks, curbs, gutters, foundations, previous construction materials, glass, headwalls, flared end sections, catch basins, manholes, inlets, drywells, septic tanks, unused utilities, pipes, cisterns, walls, rocks, and other debris.

C. Trees, shrubs and roots shall be completely removed and disposed of legally off site.

D. Maintain existing utilities shown to remain and protect from damage during demolition and construction operations. Do not interrupt existing utilities; provide temporary services when required, as acceptable to the Architect.

E. Research with Owner possible locations of existing subsurface utilities prior to excavating.

3.4 TEMPORARY CONSTRUCTION ROADS AND STAGING AREAS

A. Install soil stabilization fabric as specified and overlap fabric two (2') feet minimum. Provide 95% compacted staging area/construction road stone for temporary construction roads and staging areas as shown on the drawings and as required by the Contractor to access the proposed work.

B. Near the project completion, remove the stone staging area/construction roads and soil stabilization fabric. Recondition and decompact existing topsoil, fine grade, and seed as directed by the Architect to match existing lawn conditions.

C. Near the project completion, repair asphalt and concrete to match existing conditions, power wash area, seal coat asphalt, and repaint parking lines as directed by the Architect.

3.5 ASPHALT MILLING

A. The Contractor has the option to mill existing asphalt and dispose off site, Or;

B. The Contractor shall retain ownership of the asphalt millings. Asphalt millings may be used as satisfactory earth fill when meeting gradation for imported granular fill in Section 312201. Provide a mechanical analysis based on ASTM C136 for approval prior to installation.

C. The Contractor shall use equipment with automatic grade and slope controls, capable of cold milling existing asphalt pavement to an accurate depth of cut, profile and cross slope and shall be capable of loading the milled material directly into trucks.

D. Cold milling asphalt pavement shall be performed in a manner which prevents the tearing and breaking of underlying and adjacent pavement and the contamination of the millings with granular subbase material, subgrade or deleterious materials. All millings shall be loaded directly to trucks from the milling machine and hauled to stockpile or disposed of.

E. The milled surface shall be swept and jet washed clean prior to installation of new surface material. The Contractor shall sweep the surface in a manner which minimizes dust.

F. The Contractor shall promptly repair any and all localized areas of distress in the milled surface that may present a hazard to traffic, the finished surface, the stability of the new asphalt, or deemed unsuitable by the Architect, at no additional cost to the Owner.

G. Contractor shall apply NYSDOT approved tack coat to the cleaned, milled surface in preparation to received new top course asphalt as specified in Section 321201 - Asphalt Paving.

3.6 SAW CUTTING

A. The Work consists of vertical saw cutting of the existing asphalt or concrete pavement structure to facilitate the removal of the asphalt or concrete bound material.

B. The equipment shall be capable of producing a smooth vertical saw cut without causing damage to the adjacent pavements or related site features.

C. The Contractor shall saw cut the asphalt/concrete pavement to a depth which will allow removal of the material without causing damage to the adjacent pavement. Rough, jagged or cracked edges will not be acceptable. Concrete pavement shall be removed at the nearest contraction joint.

3.7 RELOCATIONS

A. Any item noted to be relocated shall be removed by the Contractor from its existing position without damaging it, stored, protected from theft, fire, vandalism and damage for the project duration. Reset in the location(s) and in the manner detailed, noted on the drawings or specified.

B. Backfill voids with imported granular fill material, placed in eight (8") inch layers compacted to 95% maximum density when located in proposed pavement areas or 90% maximum density when located in proposed non-paved areas.

C. Salvaged items shall be returned to the Owner as noted on the drawings. Move items to Owner designated areas.

3.8 CLEAN UP

During the contract and at intervals as directed by the Architect and as site preparation is completed, clear the site of extraneous materials, rubbish, and debris. Leave the site in a clean, safe, well draining, neat condition.

Appendix D- Asphalt Paving

1.0 PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

A. The extent of asphalt paving is shown on the drawings.

B. Asphalt Paving work includes, but is not limited to, the following:

1. Soil Stabilization Fabric
2. Granular Base Course
3. Asphaltic Concrete
4. Bituminous Tack Coat
5. Painted Lines and Traffic Markings
6. Hot Pour Crack Sealing and Filling
7. Field Quality Control
8. Asphalt Price Adjustment
9. Clean up

C. Provide all materials, labor, equipment, and services required to accomplish related work in accordance with the drawings and specifications.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Section 311201 - Site Preparation (Asphalt Milling)

B. Section 312201 - Site Earthwork

C. Section 334001 - Storm Drainage

1.3 REFERENCES

A. The latest editions of the following Standards, as referenced herein, shall be applicable:

1. New York State Department of Transportation Standard Specifications, Section 402 - “Hot Mix Asphalt (HMA) Pavements" and 407 - "Bituminous Tack Coat"
2. “Standard Specifications for Highway Materials and Methods of Sampling and Testing, American Association of State Highway and Transportation Officials (AASHTO).”
3. American Sports Builders Association (ASBA) Asphalt Guidelines, latest edition

B. The following reference standards shall apply for Testing and Inspection:

1. ASTM D1074: Standard Test Method for Compressive Strength of Bituminous Mixtures
2. ASTM D1188: Standard Test Method for Bulk Specific Gravity and Density of Compacted Mixtures Using Paraffin-Coated Specimens.
3. ASTM D2041: Test Method for Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures

4. ASTM D2726: Standard Test Method for Bulk Specific Gravity and Density of Non-absorptive Compacted Bituminous Mixtures
5. ASTM D2950: Standard Test Method for Density of Bituminous Concrete in Place by Nuclear Methods
6. ASTM D3203: Standard Test Method for Percent Air Voids in Compacted Dense and Open Bituminous Paving Mixtures
7. ASTM D3549: Standard Test Methods for Thickness or Height of Compacted Bituminous Paving Mixture Specimens
8. NYSDOT Materials Method 28 Friction Aggregate Control and Test Procedures

C. The following reference standards shall apply for pavement markings:

1. ASTM D562, D711, D1475, D1640, D2369, D3723, D3960.
2. DOT Code of Federal Regulations, Hazardous Materials and Regulations Board, Reference 49CFR, ICC Regulations
3. Federal Specification TT-P-115E, Type III (Type I if V.O.C. compliance)

D. Additional testing required, only if directed in writing by Architect, due to asphalt installation and material issues:

1. ASTM C295: Standard Guide for Petrographic Examination of Aggregate
2. ASTM D1560: Standard Test Methods for Resistance to Deformation and Cohesion of Bituminous Mixtures by Means of Hveem Apparatus
3. ASTM D4125: Standard Test Methods for Asphalt Content of Bituminous Mixtures by the Nuclear Method
4. ASTM D5444: Standard Test Method for Mechanical Size Analysis of Extracted Aggregate
5. ASTM D6307: Standard Test Method for Asphalt Content of Hot-Mix Asphalt by Ignition Method
6. ASTM D6931: Standard Test Method for Indirect Tensile (IDT) Strength of Asphalt Mixtures
7. ASTM D7312: Standard Test Method for Determining the Pavement Shear Strain and Complex Shear Modulus of Asphalt Mixtures Using the Superpave Shear Tester

1.4 SUBMITTALS

A. Provide Paving Contractor experience requirements, as outlined in "Quality Assurance" of this specification section, for the following:

1. General Paving

B. Provide Asphalt Producer Vendor Certificate and proof of quality control monitoring as outlined in "Quality Assurance" of this specification section.

C. Provide material certificates showing content/mechanical analysis for the following:

1. Asphaltic Concrete Mix Design with Authorization Signature:

a. Type/name of mix (less than 24 months old)
b. All aggregates gradations and quality measurements

c. Plot (0.45 power graph) of the final aggregate blend
d. Bulk specific gravity of all aggregates and final aggregate blend including worksheets for natural (virgin) as well as reclaimed asphalt pavement (RAP)
e. Grade of asphalt binder (PG) being used
f. Optimum percent asphalt binder (Pb)
g. Mix air voids at optimum (Va)
h. Bulk specific gravity of mix at optimum
i. Theoretical maximum specific gravity of mix at optimum
j. Voids in the Mineral Aggregate (VMA) and Void Filled with Asphalt (VFA)
k. Dust to total asphalt content (AC) ratio
l. All design data and associated design curves

2. Bituminous Tack Coat

D. Provide Manufacturer's Product Data (MPD) for the following:

1. Soil Stabilization Fabric
2. Painted Lines and Traffic Markings
3. Hot Pour Crack Sealing and Filling

E. Provide shop drawings for the following:

1. Painted Lines and Traffic Markings: Shop drawings indicating sizes, shapes, patterns, and colors of markings, including manufacturers and types of paint.
2. Owner to approve all paint colors prior to installation.

F. Submit Asphalt Placement Work Plan, indicating: paving pass widths, paving directions, site access, and timing/coordination of any site equipment installation (posts, boxes, fencing, etc.) indicated in 3.3 of this specification section. Supply Owner with yield calculations for all asphalt paving products and materials used on the project as part of the work plan.

G. Field Quality Control test reports as indicated in this specification section.

1.5 QUALITY ASSURANCE

A. Paving Contractor Experience Requirements:

1. General Paving: Contractor shall have the experience of at least five (5) years in business. Paving superintendent has a minimum of three (3) years' experience as a paving crew operating foreman.

B. Asphalt Testing and Inspection Services:

1. The Owner will employ and pay for the services of an Independent Testing Agency to provide testing and inspections of asphalt pavements.

2. The services and the information provided by the Testing Agency are provided for the sole benefit of the Owner. The information is provided to the Contractor for the sole purpose of being aware of what is being reported.

3. The Contractor is solely responsible for assuring the work complies with the Contract Documents in all respects and may not rely on the testing agency for this or any other assurances. The Testing Agency and their representatives are not authorized to revoke, alter, relax, enlarge, or release any of the requirements of the Contract Documents, approve or accept any portion of the work, perform or excuse any duties of the Contractor, or be involved in the scheduling of any work.

4. Asphalt paving materials and operations shall be tested and inspected as the work progresses. Failure by the Testing Agency to detect any defective work or material shall not in any way prevent later rejection (when such defect is discovered) nor shall it obligate the Owner for final acceptance.

C. Asphalt producer shall monitor production according to the procedures of NYSDOT Material Method 28 Friction Aggregate Control and Test Procedures. Asphalt producer shall be a New York State approved/certified HMA (Hot Mix Asphalt) manufacturing facility.

1.6 JOB CONDITIONS

A. Job conditions in Section 312201 apply.

B. Atmospheric conditions for applying courses:

1. Hot mix asphalt shall generally arrive on the project site between 270°-300° F. (per asphalt producer recommendations).
2. Place asphalt concrete wearing course or bituminous surface treatment only when atmospheric temperature is above 50 degrees F. and rising, and when asphalt binder course is thoroughly dry.
3. Place binder course only when air temperature is above 45 degrees F. and rising and when asphalt base course or granular stone base course is thoroughly dry.

C. Grade Control: Establish and maintain required lines and elevations.

D. Codes and Standards: Perform the work in compliance with applicable requirements of governing authorities having jurisdiction. Obtain and pay for permits required by local authorities.

E. Construction Review and Testing: Notify and coordinate with the Independent Testing Agency and Architect when the subgrade is shaped and ready for proof rolling. Also, when the granular base course is fully installed, compacted and ready for density testing. Protect subgrade and subbase at all times.

F. When staging or scheduling delays occur and wearing course cannot be installed directly after binder course installation before winter, provide temporary asphalt transition ramp/collar around drainage structures in paved areas and at handicap ramps to prevent damage by snow plow. Remove prior to installation of wearing course. Power wash

surface and apply asphalt tack coat, as specified, prior to wearing course installation, at no additional cost to the Owner.

1.7 DELIVERY, STORAGE, AND PROTECTION

A. Deliver all materials to the job site with all labels intact and legible at time of installation.

B. Store materials off ground under cover. Protect from damage or deterioration.

C. Handle materials to prevent damage to surface, edges, ends and factory applied finishes of items. Damaged material shall be rejected and replaced.

1.8 ASPHALT PRICE ADJUSTMENT

A. Asphalt pricing is based on the NYS Department of Transportation average posted prices for Asphalt Performance Graded Binder (PGB). NYSDOT Website: https://www.dot.ny.gov/main/business-center/contractors/construction-division/fuel-asphalt-steel-price-adjustments

B. Asphalt Price Adjustment: The asphalt price adjustment will be based solely on the price changes for asphalt as determined by the formulas below. No adjustment will be made if the monthly average posted price is within $15.00 of the asphalt index price. No consideration will be given to the situation where an individual supplier's price exceeds the monthly average posted price.

C. Prices: The Asphalt Index Price and Monthly Average Posted Price are defined as follows:

1. Asphalt Index Price: The asphalt index price is a price per ton of Performance Graded Binder (PGB) used solely as a basis from which to compute asphalt price adjustments. The asphalt index price for original contract bid price items and additional work at the original contract bid price will be the monthly average posted price for the month of the bid letting.

2. Monthly Average Posted Price: The average terminal price for unmodified PG 64-22 binder, without anti-stripping agent, determined by the NYSDOT, based on prices of approved primary sources of PGB.

D. Adjustment: Asphalt price adjustment will be based on the following formulas:

1. When price Increases: Price Adjustment = (tons x % asphalt) x (Monthly Average Posted Price – PGB Index Price - $15.00)

2. When price Decreases: Price Adjustment = (tons x % asphalt) x (Monthly Average Posted Price – PGB Index Price + $15.00)

E. Pavement Types and Percent Asphalt*:

37.5mm	Type 1 Base Course	4.8% Asphalt
19.0mm	Type 3 Binder Course	4.8% Asphalt
9.5mm	Type 7 Top Course	6.3% Asphalt

* Percentage of Asphalt is approximate and shall be based off actual project submittals provided by the Asphalt Producer.

2.0 PART 2 - PRODUCTS

2.1 SOIL STABILIZATION FABRIC

A. Shall be a heavy duty, commercially manufactured woven polypropylene geotextile. Standard of quality shall be Mirafi 500X, manufactured by TenCate or Architect approved equal.

2.2 GRANULAR BASE COURSE AND GRAVEL PAVEMENT

A. Shall be as specified in Section 312201.

B. The graded and designed granular base below all new Asphaltic Concrete Pavements shall be constructed, tested, and prepared in accordance with Section 312201 - Site Earthwork of the Contract Documents.

2.3 ASPHALTIC CONCRETE

A.

Pavement Types	Percent Asphalt*
37.5mm Type 1 Base Course	4.8% Asphalt
19.0mm Type 3 Binder Course	4.8% Asphalt
9.5mm Type 7 Top Course	6.3% Asphalt

* Percentage of Asphalt is approximate and shall be based off actual project submittals provided by the Asphalt Producer.

B. Hot Mix Asphalt Top Course: Pavement shall meet the minimum requirements for 9.5 mm (Type 7) SUPERPAVE Hot Mix Asphalt Top Course (75 gyrations), with a PG 64-22 Binder as specified in Section 402, of the current NYSDOT Standard Specifications, with the exception that the maximum proportion of Recycled Asphalt Pavement (RAP) to virgin aggregates shall not exceed 15% of the total mix.

C. Hot Mix Asphalt Binder Course: Pavement shall meet the minimum requirements of 19.0mm SUPERPAVE Hot Mix Asphalt Binder Course (75 gyrations), with a PG 64-22 Binder, as specified in Section 402, of the current NYSDOT Standard Specifications, with the exception that the maximum proportion of Recycled Asphalt Pavement (RAP) to virgin aggregates shall not exceed 20% of the total mix.

D. Hot Mix Asphalt Base Course: Pavement shall meet the minimum requirements of 37.5mm SUPERPAVE Hot Mix Asphalt Base Course (75 gyrations), with a PG 64-22 Binder, as specified in Section 402, of the current NYSDOT Standard Specifications, with the exception that the maximum proportion of Recycled Asphalt Pavement (RAP) to virgin aggregates shall not exceed 20% of the total mix.

E. The coarse aggregate used in HMA shall be sound, angular crushed stone or crushed gravel. The fine aggregate shall be well graded, moderately sharp to sharp (angular) sands.

2.4 BITUMINOUS TACK COAT

A. Material shall consist of an asphalt emulsion, Grade RS-1h, and shall meet the minimum requirements of Section 407, of the current NYSDOT Standard Specifications. Bituminous Tack Coat shall be installed over all new and existing concrete and asphalt pavements and structures prior to the installation of new Hot Mix Asphalt materials. The following application rates shall apply:

1.	New Hot Mix Asphalt	0.05-0.07 gal/sy
2.	Milled Surfaces of Existing Asphalt	0.10-0.15 gal/sy
3.	Abutting Vertical Edges (drainage structures, appurtenances)	0.05-0.07 gal/sy
4.	All Styles of Curbs and Gutters	0.05-0.07 gal/sy
5.	Delayed asphalt installation of HMA Courses	0.10-0.15 gal/sy

2.5 PAINTED LINES AND TRAFFIC MARKINGS

A. The extent of the pavement markings shall match the extent, location and composition of pavement markings existing at the site prior to start of work where applicable.

B. The work includes, but is not limited to the following: parking stall divider lines, wheelchair legends, "STOP" legends, "NO PARKING" legends, pick-up zone, striping and legends, directional arrow legends, diagonal striping, center line striping, fire lane striping, student area line striping, and other pavement markings as may be shown on the plans.

C. Provide ready-mixed, one component waterborne traffic line paint. Standard of quality shall be: Pro-Park® Waterborne Traffic Marking Paint B-97 Series as distributed through Sherwin-Williams, 800-474-3794; or Architect approved equal.

1. Colors (as approved by the Owner in writing):

a.	Yellow:	1 Gallon & 5 Gallon, Product Number B97YD2467
b.	White:	1 Gallon & 5 Gallon, Product Number B97WD2434
c.	Blue:	1 Gallon & 5 Gallon, Product Number B97LD2022
d.	Black:	1 Gallon & 5 Gallon, Product Number B97BD2021

2. Paints shall contain all necessary co-solvents, dispersants, wetting agents, preservatives, and all other additives, so that paint shall retain viscosity. Halogenated solvents and glass beads shall not be permitted.

3. Volatile Organic Compound (VOC) content shall not exceed 250 grams maximum per liter of paint as determined in accordance with ASTM D 3960 test, excluding water and exempt solvents.

2.6 HOT POUR CRACK SEALING AND FILLING

A. Single component, hot applied asphalt crack and joint sealant capable of withstanding temperatures of up to 450° without experiencing polymer degradation.

B. Shall be supplied in solid blocks comprised of heat stabilized polymers and asphalt.

C. Meeting the following material requirements when tested in accordance with ASTM D5329. (see chart below)

Chemical & Physical Analysis

Recommended Application Temperature	350-400°F
Maximum Heating Temperature	450°F
Cone Penetration at 25°C	50 max.
Flow at 60°C, mm	0.
Softening point	200°F Min.
Flexibility 0°F	(1" Mandrel)-Pass
Specific Gravity	1.17
Asphalt Compatibility	Passes

D. Standard or quality shall be Crack Master Supreme as manufactured by Thorworks Industries, Inc., 800-395-7325, www.thorworks.com or approved equal.

3.0 PART 3 - EXECUTION

3.1 PREPARE SURFACE

A. Prior to commencement of asphalt paving, all excavations, drainage, utilities, backfilling, fencing, bollards, storm structures, curbing installations, adjustments, proof-rolling and density test procedures shall be complete to the satisfaction of the Architect.

B. Prior to commencement of tack coat and asphalt paving within pavement milled areas, as shown on the plans, all cracks and joints in the milled pavement surface shall be prepared and filled in accordance with the project specifications. Any oil or grease spots shall be scraped and treated to prevent bleeding through the tack coat.

C. Saw cut, using straight and true lines, all existing asphalt pavements to remain in place with straight, neat edge for abutting against proposed asphalt pavement.

D. Provide and confirm field quality control as described in Section 312201 for pavement subgrade and granular base course stone.

3.2 CONSTRUCT PAVEMENT GRANULAR BASE COURSE

A. General: Consists of placing granular base course material, in layers of specified thickness, over prepared subgrade and fabric to support a pavement course.

B. Grade Control: Provide engineering layout per Section 312201 and grade stakes. During construction, protect grade stakes; maintain lines and grades including crown and cross-slope of each course.

C. Install soil stabilization fabric after subgrade has been acceptably compacted and proof rolled. Install soil stabilization fabric as recommended by the manufacturer AND;

1. Lay fabric in direction of construction traffic.

2. Overlap fabric side to side and end to end a minimum of two (2') feet.

3. Establish reasonable compaction and rut stability before using heavy or vibratory compaction equipment.

D. Placing:

1. Place granular base material over soil stabilization fabric, on prepared subgrade in layers of uniform thickness, conforming to the asphalt pavement details on the drawings.

2. Place granular base material in a maximum of six (6) inch layers and compact with a vibratory or 10 ton smooth wheeled roller.

E. Provide density testing as described in Section 312201.

F. Surface Smoothness: Test finished surface for smoothness. Surface will not be acceptable when it deviates more than 3/8" measured by a 10 foot straightedge, in any direction.

G. The finished grade of the granular base course shall be verified to ensure that the final finished product of the bituminous concrete pavement surface will be installed to the lines and grades of the existing pavements and proposed elevations surveyed by the Contractor prior to the start of the paving work.

3.3 PLACE ASPHALT MIX

A. General:

1. The Contractor shall submit a paving plan, indicating intended direction of paving, number of pulls, etc. for approval prior to the start of paving operations.

2. Joints: Saw cut vertical straight, neat edges for joints required. Joints shall be sharp and clean, conforming to shapes drawn on drawings. Ragged joints will not be accepted.

3. Mill two (2') feet into surface of adjacent asphalt so joints do not line up or "stack". Stacked pavement joints are not acceptable in any application and will be rejected.

4. Place bituminous tack coat to all surfaces as indicated in this specification. When pavement surface temperature is above or below the 75-130 degrees F. range, the grade of asphalt emulsion must be modified according to NYSDOT standards. Tack coat shall not be applied to a wet surface or when the pavement surface temperature is below 45 degrees F.

5. Place asphalt on approved prepared surface, spread and strike-off.

6. Spread mixture at minimum temperature of 225-240 degrees F. Place inaccessible and small areas by hand. Hand work shall be minimized to ensure the best possible finished surface.

7. Place each course to required grade, cross-section, and compacted thickness.

8. Paving operations shall not be scheduled when ample time does not exist to place, compact, and finish roll the hot mix asphalt during daylight hours and prior to rainfall.

B. Pavement Placing: Shall be installed in accordance with Section 402-"Hot Mix Asphalt (HMA) Pavements", of the current NYSDOT Standard Specifications.

C. Paving Equipment:

1. Must be capable of placing, spreading and finishing courses of HMA to the specified thickness.

2. HMA shall be free of marks, segregation and be placed to the required uniform elevation with a smooth texture not showing tearing, shoving, or gouging.

3. Auger extensions are required while pavers are extended beyond the basic screed width.

4. Paving equipment shall be self-propelled and capable of maintaining the line and grade shown on the plans with suitable electronic equipment. The screed shall be straight and true with no bow and utilizing a vibratory screed. Paving equipment should have fully functional screed heaters and joint preheaters.

D. Asphaltic Concrete shall be installed as follows:

1. Light Duty Pavement: Installed in two (2) lifts consisting of 19.0mm SUPERPAVE Hot Mix Asphalt Binder Course overlain by 9.5mm SUPERPAVE Hot Mix Asphalt Top Course.

2. Medium Duty Asphalt Pavement: Installed in two (2) lifts consisting of 19.0mm SUPERPAVE Hot Mix Asphalt Binder Course overlain by 9.5mm SUPERPAVE Hot Mix Asphalt Top Course.

3. Heavy Duty Asphalt Pavement: Installed in three (3) lifts consisting of a 37.5mm SUPERPAVE Hot Mix Asphalt Base Course overlain by 19.0mm SUPERPAVE Hot Mix Asphalt Binder Course overlain by 9.5mm SUPERPAVE Hot Mix Asphalt Top.

E. Place in strips not less than ten (10') feet wide, unless otherwise acceptable. In placing each succeeding pass after the placement of the initial pass, the screed of the paver shall be set such that it overlaps the preceding pass by 6" and be sufficiently high such that when compacted, a smooth joint is produced. Prior to pinching the joint, the excess

material shall be pushed onto the edge of the new pass with a lute. Excess material shall be removed.

F. After first lift has been placed and rolled, place succeeding lifts and extend rolling to overlap previous lifts. Where possible, top course shall be placed at right angles to binder course and in the direction that the drainage flows. Where this is impractical, offset joints of the two courses by a minimum of two (2') feet so upper and lower joints do not align.

3.4 ROLL ASPHALT MIX

A. General:

1. Rollers shall conform to the manufacturer's specifications for all ballasting. At least one vibratory roller shall be required for each project, with two rollers required as a minimum. (Three rollers shall be required when tonnage is greater than 300 tons/day.)

2. Rollers shall be of a good condition and capable of compacting the HMA to the minimum in-place density required by this specification. Compact asphalt with a nominal 10 ton steel wheel roller or pneumatic rubber tired roller. Compact mixture with hot hand tampers or vibrating plate compactors in areas inaccessible to rollers.

3. Begin rolling when mixture will bear roller weight without obvious or excessive displacement.

B. Finish Rolling: Each lift of the Asphaltic Concrete Pavement shall be mechanically rolled and compacted to the finished thicknesses specified in the Contract Documents. The pavements shall be compacted to a minimum of 94%-97% (95%-102% at longitudinal joints) of the materials theoretical density as determined by AASHTO Method T 209 and an air void percentage of 5%-6% maximum.

C. Patching: Remove and replace paving areas mixed with foreign materials, dirt, and defective areas. Cut-out such areas and fill with fresh, hot asphalt concrete. Compact by rolling to maximum surface density and smoothness.

D. Joints:

1. The Contractor shall sequence the installation and orientation of all Asphaltic Concrete Pavements such that the minimum numbers of longitudinal and transverse joints are produced and in accordance with the approved Asphalt Placement Work Plan.

2. Neat, straight butt joints between successive passes. Offset joints a minimum of six (6") inches between lifts of asphalt.

3. When repairs or staging of work occurs, make neat vertical saw cut between old and new work to create butt joint. Heat joint prior to pouring. Cold joints are <u>not</u> acceptable.

4. Apply bituminous tack coat to all surfaces and rates indicated under "Bituminous Tack Coat" of this specification section. Tack coat shall not be required on abutting vertical edges for pavements placed in the same day.

5. Minimize construction, longitudinal, and transverse joints left open for an extended period of time.

6. Construct longitudinal joints by paving in a hot fashion with a temperature of not less than 220°F to ensure maximum performance and adhesion.

7. Compact all joints to provide for a neat, uniform and tightly bonded joint that will meet both surface tolerances and density requirements of this specification.

8. Cut straight and true (vertical construction or transverse joints if the material has cooled to less than 220°F prior to the placement of the next pass to ensure the best performing joint possible.

F. Edges: Roll at 45 degrees as detailed, creating clean edge conforming to shapes indicated on the drawings. Ragged edges will not be accepted. Return and saw cut ragged edges at no additional cost to the Owner as directed by the Architect.

G. The final finished grades of the new Bituminous Concrete Pavements must be smooth and true to the contours and shall be installed to the lines and grades of the site prior to start of construction. The final finished grades shall match adjacent pavement surfaces and concrete slabs, aprons, and doorways.

H. Construction Delays (over 48 hours): When placement of the wearing course over the binder course is delayed over 48 hours, thoroughly clean existing surface of dirt, oil and other debris by pressure washing and sweeping. Place bituminous tack coat as specified in this section.

3.5 ASPHALT TOLERANCES

A. Thickness and Density: Compact each asphalt course to produce the thickness indicated on the drawings within the following tolerances:

1. Base Course: Plus or minus 1/2-inch
2. Binder Course: Plus or minus 1/4-inch
3. Wearing Course: Plus or minus 1/8-inch

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

1. For Asphalt Concrete:

Base Course Surface:	3/8"
Binder Course Surface:	1/4"
Wearing Course Surface:	1/8"

C. Asphalt Cores: Shall be provided as indicated under "Field Quality Control" of this specification.

3.6 FIELD QUALITY CONTROL

A. The Owner's Testing Agency shall provide the following in the daily report at a minimum:

1. Verify the following for the asphalt mix design prior to asphalt placement:

   a. The asphalt mix design has been approved.
   b. The asphalt mix design specifies the minimum relative compaction and the methods required to determine maximum density.

2. Verify the asphalt subgrade has been acceptably proof-rolled. (See Section 312201.)

3. Inspect /test aggregate base course material for in-place density (95%) and thickness. Test materials for gradation classification, and physical properties. (See Section 312201.)

4. Inspect/test asphalt wearing course material for compaction during placement and conduct thickness measurements during lay-down. Take temperature of the asphalt mixture and compare actual temperature with the approved asphalt mixture design range. As a minimum, perform the following inspection/tests:

   a. Collect trip tickets from trucks delivered to the site and verify correct mix design being used for the project.
   b. Temperature tests: one per truck.
   c. Lay down thickness (uncompacted): one per strip or 500 square feet minimum
   d. Verify equipment rolling pattern and passes to ensure proper compaction: one per day
   e. Density test (daily lab density): one test per 5000 square feet minimum
   f. Hot mix samples (laboratory testing for density per ASTM D1188): one per day
   g. Thickness per ASTM D3549 and density samples per ASTM D2950 by a properly calibrated nuclear asphalt testing device. If there is a disagreement between tests done by ASTM D2950 and ASTM D1188, the values done by ASTM D1188 will govern: one test per 20,000 square feet (surface lift), one test per 10,000 square feet (base lift)
   h. Air voids per ASTM D3203 or D2726: one test per 5000 square feet minimum
   i. Verify compaction at the joints and seams. The completed paved surface to be true to grade and cross section. Verify smoothness by using an unleveled 10 foot straightedge and ensuring no gap at any point between straightedge and pavement exceeds surface smoothness requirements above except at interception or at changes of grade.
   j. The screed/lay down thickness tolerance shall be between 1/8 to 3/16 inches greater than the required asphalt minimum layer requirement. When screed depth is set for the exact thickness as specified,

immediately notify the Owner's Representative and Contractor that the installed asphalt thickness may be deficient to achieve the specified minimum thickness. Identify areas of non-complying thickness and attach a drawing identifying the areas to the daily field report.

k. Immediately notify the Owner's Representative and Contractor when paving is being conducted in cold weather and asphalt temperatures are below or above the design mix range.

l. Check the surface grades and drainage patterns. Identify on a drawing all paved areas that are holding water after asphalt placement and notify the Owner's Representative and Contractor. Small ponding areas (bird baths) larger than two (2') feet in any dimension are not acceptable. When this test proves that surface conditions are not acceptable, the Contractor will be responsible for correcting the problem areas. Install a one (1") inch shim coat of wearing course material, or other means acceptable to the Architect.

m. Verify tack coat and edge coat have been applied at the proper rate.

5. Asphalt Cores: Shall be as directed by the Architect.

a. Prior to final acceptance of the asphalt and before lining or other surface materials (color court surfacing, resilient track surfacing, etc.) are placed, the Owner's Testing Agency shall core 4" diameter areas of the asphalt surfacing where directed by the Architect. Consistency, density, thickness, and tensile strength per ASTM D6931 will be evaluated.

b. Patch core areas as directed by the Architect to match adjacent density, texture and thickness.

c. Coordinate day to day scheduling with the Testing Agency.

d. If cores vary significantly from the contract requirements, additional cores will be performed by the Testing Agency as directed by the Architect. Once the overall general quality is determined, provide remedial work as directed by the Architect to achieve the quality and consistence as specified.

B. Unacceptable Paving: Remove and replace unacceptable paving as directed by the Architect, immediately and without argument or delay. Correction of deficient areas in the wearing course shall be done by sawcutting and removal of defective area of work. Tack coat shall be applied to all edges and the pavement shall be replaced. Shimming or skin patching of the wearing course shall not be permitted. Correction of deficient areas within the binder course shall be corrected by sawcutting and milling high spots, and truing and leveling low spots or as directed by the Architect.

3.7 SURFACE PROTECTION

A. Protection: After final rolling and sealing, do not permit any type of vehicular or construction traffic on pavement until it has cooled and hardened as recommended by the producer/manufacturer, minimum of 48 hours.

B. Provide protection including, but not limited to, fencing, traffic cones, barrels, lights, reflective signs, flagpersons and barricades until mixture has cooled and attained its maximum degree of hardness.

3.8 PAINTED LINES AND TRAFFIC MARKINGS

A. Cleaning: Sweep and clean surface to eliminate loose material and dust. Remove dirt, oils and other foreign matter. All surfaces to receive pavement markings shall be clean and in good condition to accept pavement markings.

B. Coordinate provisions for installation with work of other trades.

C. Locate to alignment and dimensions as shown on drawings and/or approved by Owner.

D. Painted markings shall meet regulations described in the "Manual of Uniform Traffic Control Devices", latest edition, as published by NYSDOT, Division of Traffic and Safety, Section 262.25 and figure PM-42; and they shall comply with the most recent version of the Americans with Disabilities Act Standards for Accessible Design.

E. Protect: Adjacent surfaces and other items to remain with tape, drop cloths, or other Architect approved means.

F. Application: **Two (2) coats** according to manufacturer's recommendations resulting in a dense, opaque application without any ghosting of former pavement markings showing through. Overspraying along edges will not be accepted. Edges shall be sharp and crisp, to the shapes required by the drawings. Applying only one (1) coat is NOT acceptable.

1. First coat shall be installed at the recommended DFT (dry film thickness) after paving is in place. The second coat shall be applied at the recommended DFT no later than thirty (30) days after the completion of work.

2. Apply paint materials using clean brushes, rollers or spraying equipment.

3. Apply paint materials as a rate not exceeding those recommended by the paint manufacturer for surfaces being painted, less 10% of losses

4. Comply with manufacturer's recommendations for drying time between coats. The minimum DFT must be met. Apply additional coats as needed to achieve minimum total specified DFT of the paint system.

5. The minimum required total Dry Film Thickness (DFT): The DFT shall be the minimum required thickness as measured in mils.
6. System coverage requirements minimum total thickness (unless otherwise noted):

    a. 1st Coat – 3.0 mils
    b. 2nd Coat – 6.0 mils

7. Exterior Paint Systems: Provide the following paint systems as indicated: (Colors to be approved by Owner.)

    a. Parking stall, division and limit lines shall be 4" in width, true and straight. Color: White – DFT 6.0 mils
    b. Pavement lettering "NO PARKING" shall be 2'-0" in height. Color: Yellow – DFT 6.0 mils

c. Compact lettering "COMPACT" shall be 1'-0" in height. Color White – DFT 6.0 mils
d. Stop legends shall be as detailed on drawings. Color: White – DFT 6.0 mils
e. Wheelchair legends shall be as detailed on the drawings. Color: Blue background with white symbols. Parking stall striping shall be Blue at handicap stalls only – DFT 6.0mils
f. Diagonal striping Handicapped. Color: Blue – DFT 6.0 mils
g. Diagonal striping Loading Zone. Color: Yellow – DFT 6.0 mils
h. Directional signage shall be as detailed on the drawings. Color: White – DFT 6.0 mils
i. Center line striping shall be 4" in width as detailed on the drawings. Color: White – DFT 6.0 mils
j. Fire line striping shall be 4" in width. Color: Yellow – DFT 6.0 mils

G. Allow 48 hours minimum curing time for paint before allowing traffic on surfaces. Clean up thoroughly including all protective tape, spilled paint, and debris. All parking area marking and painting to be protected by appropriate traffic barriers, lighted if necessary, so located as to prohibit parking and traffic until traffic lines are completed and properly dry.

3.9 HOT POUR CRACK SEALING AND FILLING

A. The crack must be free from moisture, dust, and loose aggregate. Routing or wire brushing are preferred methods followed by a compressed air heat lance immediately prior to sealing. The substrate and air temperature must be above 45°F.

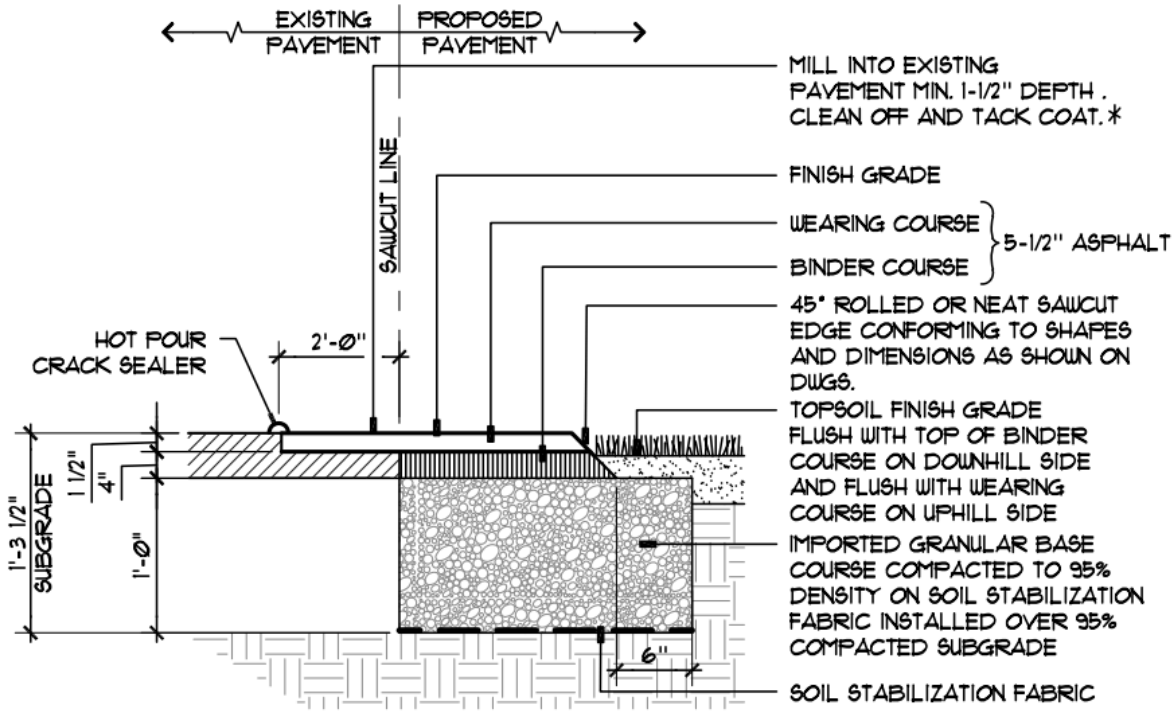
B. Shall be melted in direct fired or oil jacketed melters. Material should reach recommended pouring temperature of 350-400°F. Fresh material may be added as sealant is used.

C. Apply heated crack filler using either a pump and wand system or a pour pot. For best results the sealant depth to width ratio should not exceed 2 to 1 (i.e. 2-inches deep to 1-inch wide). The cooled sealant height should not exceed 1/8" above surrounding pavement. Using a sealing shoe or squeegee, band the material 2 to 3 inches wide over the crack.

3.10 CLEAN UP

During the contract, and at intervals as directed by the Architect, and as asphalt paving is completed, clear the site of extraneous fabric, gravel, asphalt and debris. Leave the site in a clean, safe, well draining, neat condition.

Appendix E- Medium Duty Asphalt

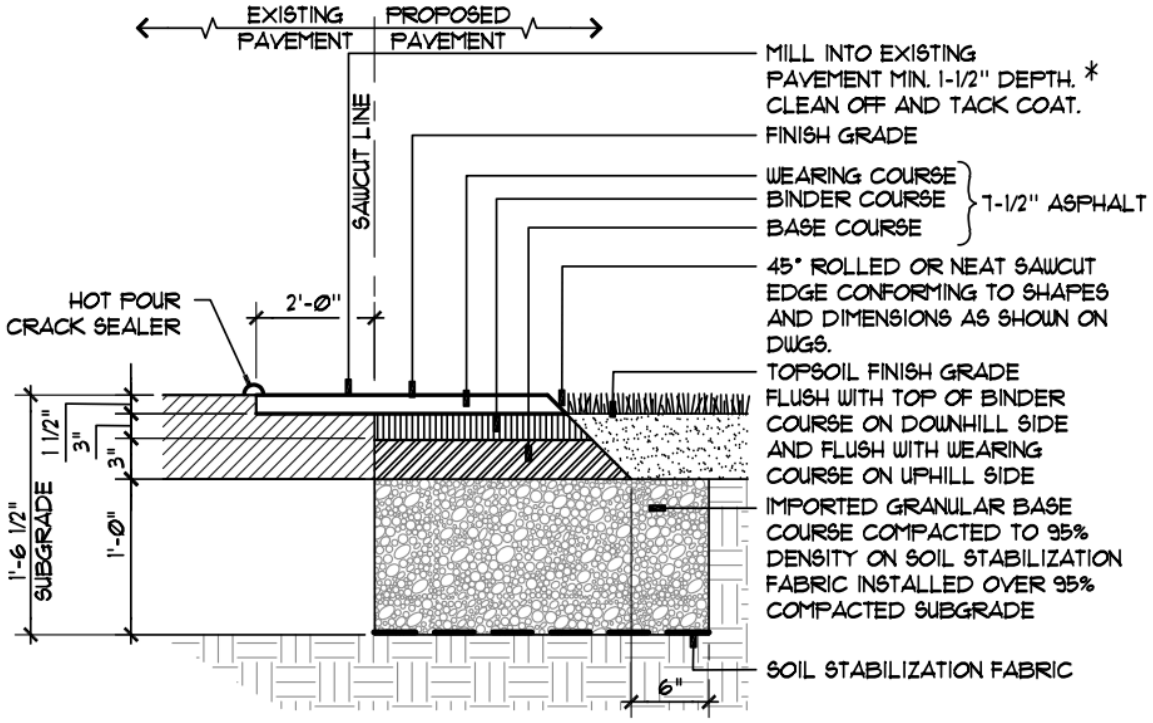


* OVERLAPPING OF JOINTS BETWEEN ASPHALT COURSES IS REQUIRED.

2 / L902 **MEDIUM DUTY ASPHALT PAVEMENT = MDA**

SECTION • NOT TO SCALE 3212-0018

Appendix F- Heavy Duty Asphalt

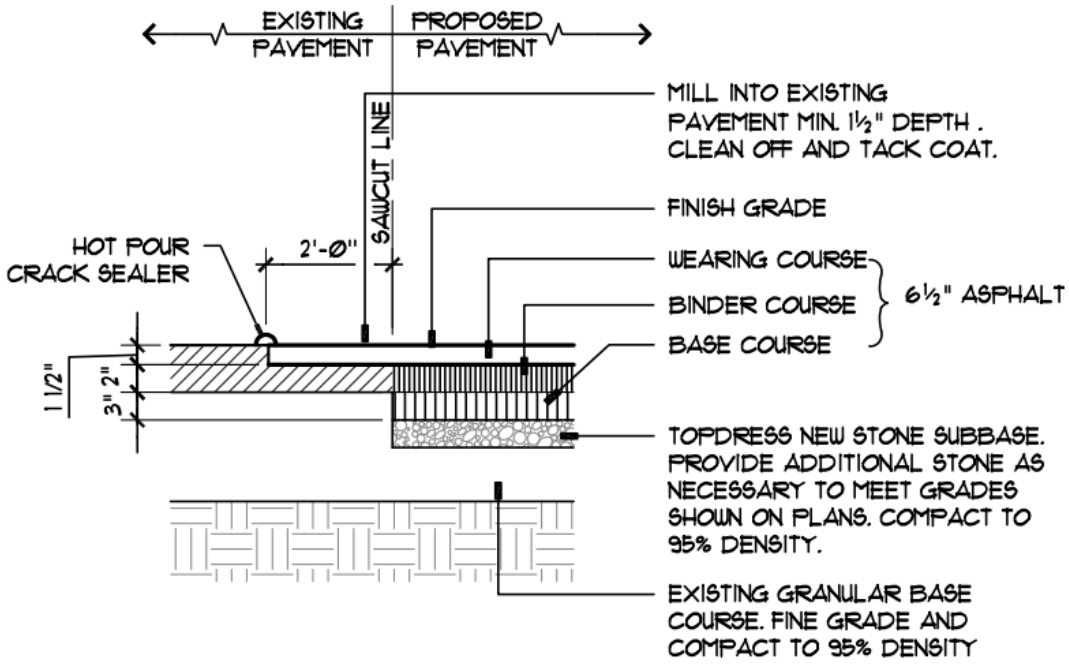


* OVERLAPPING OF JOINTS BETWEEN ASPHALT COURSES IS REQUIRED

3 L902 **HEAVY DUTY ASPHALT PAVEMENT = HDA**

SECTION • NOT TO SCALE 3212-001C

Appendix G- Asphalt Transition Details

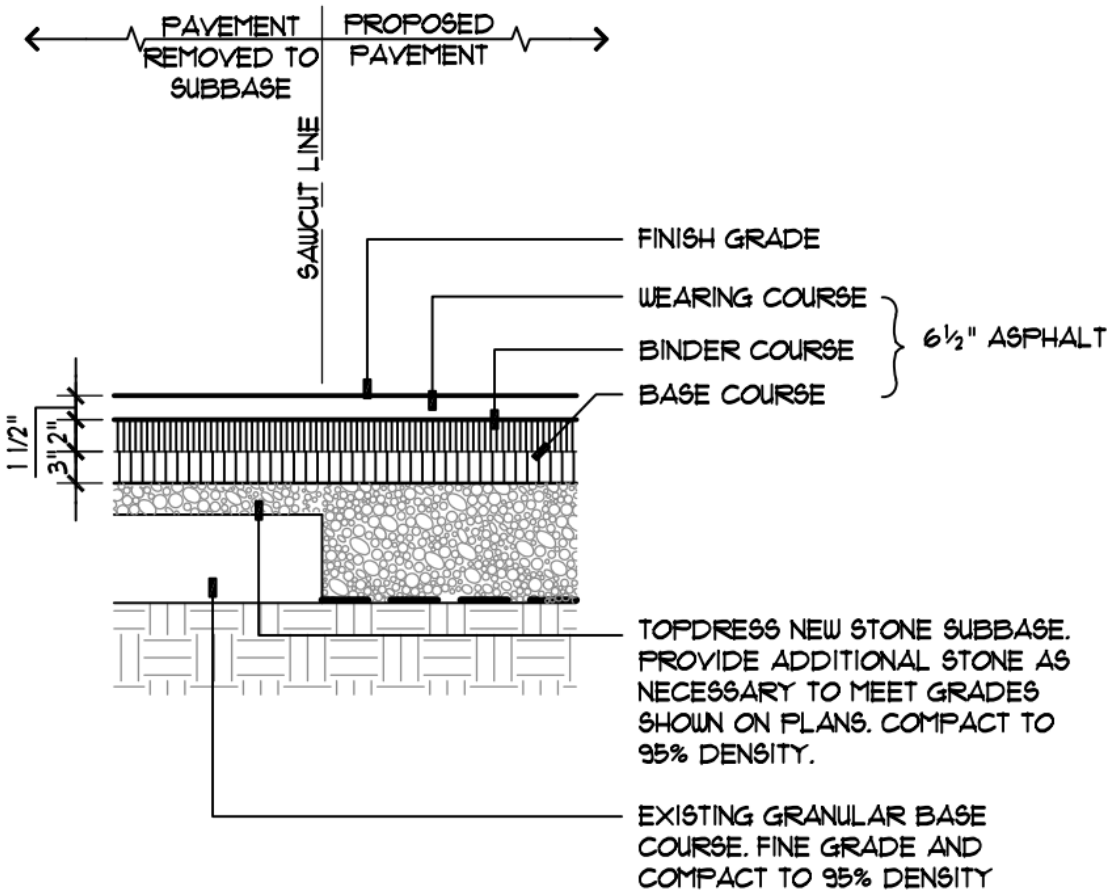


NOTES:

1. CONTRACTOR TO KEEP REMAINING EXISTING STONE BASE IN PLACE AND PROVIDE OR REMOVE ADDITIONAL STONE SUB-BASE AS NEEDED TO MEET GRADES SHOWN ON PLANS. COMPACT TO 95% DENSITY.
2. OVERLAPPING OF JOINTS BETWEEN ASPHALT COURSES IS REQUIRED.

REMOVE ASPHALT TO SUBBASE

4 / L902	**RECONSTRUCTED ASPHALT = HDA-2**	
	SECTION • NOT TO SCALE	3212-002F



REMOVE ASPHALT TO SUBBASE / NEW ASPHALT TRANSITION