

SECTION 31 23 34

PAVEMENT CUTTING AND EXCAVATION

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Work Included: The work specified in this Section includes pavement cutting, pavement excavation, backfilling and compaction.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Other contract documents, including Contract Drawings, Relevant Sections of the Standard Specifications and Special Provisions apply to the work specified herein.
- B. Division 1, General Requirements.

1.03 REFERENCES

- A. Standard Specifications of the City and County of San Francisco, Department of Public Works, Bureau of Engineering (SSDPWSF), Revised November 2000.
- B. ANSI/ASTM C136 - Method for Sieve Analysis of Fine and Coarse Aggregates.
- C. ANSI/ASTM D1557 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10 lb (4.54 kg) Rammer and 18 inch (457 mm) Drop.
- D. ANSI/ASTM D6938 – Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Method (Shallow Depth)
- E. SFDPW Order No. 187,005, 'Regulations For Excavating and Restoring Streets in San Francisco'.
- F. Article 2.4 of the Public Works Code, "Excavation In The Public Right-Of-Way".

1.04 SUBMITTALS

- A. Imported Backfill: Samples approximate 50 pounds weight shall be submitted to the Contractor's Testing Agency and the testing results shall be submitted to and approved by the Engineer and the Department of Public Works' Material Testing Laboratory, located at 2027 Newcomb Avenue, San Francisco (Tel: 415-641-4028), prior to placement.

PART 2 – PRODUCTS

2.01 FILL MATERIALS

- A. All fill materials shall be free of organic and deleterious materials and stock piling shall comply with the provisions of Section 700.06 of the SFDPW Standard Specifications.

- B. Imported sand type or equivalent backfill shall be free from rock, concrete, organic material and other objectionable material. Backfill material shall conform to the following grading:

Sieve Size	Percentage Passing
3/8-inch	100
No. 4	93-100
No. 200	0-10

- C. Unacceptable material shall be immediately removed from the site of work.

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Verify that fill material to be reused is acceptable.

3.02 PREPARATION

- A. Identify required base repair limit lines, levels, contours and datum shown in the contract drawings. Actual limits of base repair work may vary as directed by the Engineer in the field.
- B. Protect survey bench marks or monuments, existing structures, utility poles, sidewalks and curbs from excavation equipment and vehicular traffic.

3.03 PAVEMENT CUTTING AND STREET EXCAVATION

- A. Pursuant to Section 373 of the San Francisco Public Works Code, Contractor may use concrete saw cutting or vibratory pavement breaker or equal.
- B. The Contractor shall not use any machine or device that breaks pavement by blows struck by a falling or driven hammer or weight. Hoe-ram and trenching machines shall not be used for concrete street at edge of pavement restoration. Such prohibition, however, shall not be construed as barring the use of hand tools or manually operated air tools such as jackhammers.
- C. Rock Cutter: The use of the rock wheel cutter for street excavation is prohibited unless permitted by special order of the Director of Public Works for specific locations. If permitted, rock wheel cutter shall only be used to remove the pavement (concrete base and asphalt wearing surface), and only after potholing has been done to determine the pavement thickness. Rock wheel cutters shall not be used on concrete streets; shall not be used as a trenching device and shall not be used within 10 (ten) feet of a signalized intersection.
- D. All areas of pavement to be cut shall be in neat and straight lines and overcutting of lateral trenches shall not be allowed. Dust control shall be provided by using non-potable water with the rockcutting wheel. Protection from flying rocks, debris, etc. shall be provided
- E. The excavation and backfill shall be in accordance with the applicable requirements as set forth in Part 7 of the SFDPW Standard Specifications.

- F. The pavement shall be restored in accordance with the applicable requirements as set forth in Part 2 of the SFDPW Standard Specifications and in these specifications.
- G. All city noise requirements shall be observed at all times.
- H. Water used for cutting machines shall be removed by vacuum pump or equivalent means immediately following the cutting machine. Cut residues shall not be removed and not allowed to form slurry. The slurry collected in the vacuum pump's tank shall not be discharged to City sewers.

3.04 BACKFILLING AND COMPACTION

- A. Backfilling excavations as promptly as progress of work permits and in accordance with all relevant requirements of Sections 703, 712 and all other applicable sections of the SFDPW Standard Specifications.
- B. Compaction of fill and backfill materials shall be in accordance with the requirement of Section 707 and all other applicable sections of the SFDPW Standard Specifications.
- C. Compact all materials by mechanical means in lifts not to exceed 8" unless permitted otherwise in writing by the City Representative. Flooding or jetting will not be permitted. If compaction tests indicate that compaction or moisture content is not as specified, material placement shall be terminated and corrective action shall be taken by the Contractor prior to continued placement.
- D. Compact all fill materials to the following relative dry densities per ASTM D1557, D6938 or other reference standard acceptable to the City Representative:

1.	Asphaltic Concrete Pavement Subgrade Areas	95%
2.	Landscape Planting Areas	85%
3.	Structural Fill	95%
4.	Trench Backfill	90-95%*

*90% compaction from bottom of trench to within 4 ft of finish grade and 95% compaction for the remainder of the trench.

3.05 FIELD QUALITY CONTROL

- A. Secure the Testing Agency's inspection and testing, and the City Representative's approval for subgrades and fill layers before proceeding with construction thereon.
- B. Fill and backfill materials shall be compacted to densities specified in the applicable provisions of Sections 703, 706, 707 and 709 of the SFDPW Standard Specifications.
- C. If, based on reports from a Testing Laboratory, Subgrade or fills which have been placed are below specified requirements, provide additional compacting and retest at no cost to the City.

3.06 MAINTENANCE

- A. Protection of newly graded areas:
 - 1. Protect newly graded areas from traffic and erosion, and keep free from trash and weeds.

2. Repair and re-establish grades in settled, eroded and rutted areas to the specified tolerances.
- B. Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify the surface, reshape, and compact to the required density prior to further construction.

END OF SECTION