

APPENDIX C

Mitigation Monitoring and Reporting Program

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Mitigation Monitoring and Reporting Program Mountain View Road Bridge Replacement Project					
Impact	Mitigation	Implementation Responsibility	Implementation Timing	Monitoring Responsibility	Verification (Date and Initials)
Environmental Checklist Section 4. Biological Resources					
General Biological Resources	<p>Mitigation Measure BIO-1: Preconstruction Surveys</p> <p>Prior to any ground disturbance, an agency-approved biologist shall conduct preconstruction surveys for special status species and habitats in and adjacent to the proposed project area. These surveys shall consist of walking surveys of the project limits and, if possible, accessible adjacent areas within at least 50 feet of the project limits. The biologist(s) shall investigate all potential cover sites. This includes thorough investigation of mammal burrows, rocky outcrops, appropriately sized soil cracks, tree cavities, and debris. Native vertebrates found in the cover sites within the project limits shall be documented and relocated to an adequate cover site in the vicinity. The entrances and other refuge features within the project limits shall be collapsed or removed following investigation. Regulatory agencies shall be notified within 24 hours if any unanticipated listed species are identified during these surveys. If an individual is found during preconstruction surveys, work will not commence until the individual leaves the work area of its own volition or has been relocated to suitable habitat away from the construction area according to USFWS protocol and by an agency-approved biologist with a handling permit.</p>	Biologist approved by DPW	<p>The following shall occur prior to ground disturbance.</p> <p>Preconstruction surveys, native vertebrate relocation, and removal of entrances to refuge features</p> <p>If unanticipated listed species are identified during surveys, notification of regulatory agencies within 24 hours.</p> <p>If a listed individual is found during preconstruction surveys, work will not commence until the individual leaves the work</p>	Marin County Department of Public Works (DPW)	<p>Date: _____</p> <p>Initials: _____</p>

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			area of its own volition or has been relocated to suitable habitat.		
General Biological Resources	<p>Mitigation Measure BIO-2: Biological Monitoring</p> <p>The agency-approved biologist(s) shall be on-site during initial ground-disturbing and in-water activities, and thereafter as needed to fulfill the role of the approved biologist as specified in the project permits. The biologist(s) shall keep copies of applicable permits in their possession when on site. Through the Resident Engineer or their designee, the agency approved biologist(s) shall be given the authority to communicate either verbally, by telephone, email, or hardcopy with all project personnel to ensure that the risk of taking a listed species is minimized and that all permit requirements are fully implemented. Through the Resident Engineer or their designee, the agency approved biologist(s) shall have the authority to stop project activities to minimize take of listed species or if he/she determines that any permit requirements are not being fully implemented. If the agency-approved biologist(s) exercises this authority, the agencies shall be notified by telephone and email within 48 hours.</p> <p>During in-water activities, the approved biologist shall continuously monitor all activities (e.g., installation and removal of cofferdams and pipes) for the purpose of avoiding and minimizing any undue impacts to coho salmon, steelhead, and other special-status aquatic species (fish and herpetofauna), coho salmon critical habitat, steelhead critical habitat, habitat areas of particular concern (HAPC), and essential fish habitat (EFH) for coho salmon; and to ensure that the diversion</p>	Biologist approved by NMFS	During initial ground disturbance. Throughout in-water activities, thereafter as needed to fulfill the role of the approved biologist as specified in the project permits.	DPW	Date: _____ Initials: _____

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	<p>and dewatering devices are functioning properly. An approved aquatic biologist shall also be present for the purpose of removing and relocating any listed species that were not detected during the fish rescue or could not be removed and relocated prior to construction. The approved aquatic biologist shall be present at the work site until all listed species have been removed and relocated.</p> <p>The approved biologist shall maintain detailed records of the species, numbers, life stages, and size classes of special-status species observed, collected, relocated, injured, or killed; as well as recording the date and time of each activity or observation and shall provide this information to NMFS and CDFW, as necessary. The approved biologist shall also maintain detailed records of any impacts to special-status habitats (in particular to primary constituent elements [PCEs] of coho salmon and steelhead critical habitat and to HAPCs of coho salmon EFH) and provide this information to NMFS.</p>				
<p>General Biological Resources</p>	<p>Mitigation Measure BIO-3: Water Diversion and Dewatering</p> <p>If flowing water is present in the channel, the flow shall be diverted around the work area by creating a temporary diversion to isolate a dry active construction work area following BMP NS-5: Clear Water Diversion in the Caltrans Construction Site BMP Manual. The temporary diversion shall be installed as close as possible to the construction area to minimize impacts to the flow of the stream and shall be constructed to ensure a tight seal with the creek bed to allow for a dry work area and minimize downstream turbidity. As necessary, water behind the dam shall be pumped out and piped to a downstream location. Any water intake structure shall be installed, operated, and maintained in accordance with</p>	<p>Construction contractor; Resident Engineer</p>	<p>Before work in the streambed commences and throughout project construction activities within the streambed.</p>	<p>DPW</p>	<p>Date: _____</p> <p>Initials: _____</p>

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	<p>current NMFS, USFWS, and CDFW criteria, or as developed in cooperation with NMFS, USFWS, and CDFW to accommodate site-specific conditions. Water shall be released or pumped downstream at an appropriate rate to maintain downstream flows and the outlet of all diversions shall be positioned such that the discharge of water does not result in bank erosion or channel scour and maintains pre-project hydraulic conditions. The length of the pipe shall be the minimum necessary to safely convey the flow through the construction site and shall be placed on the streambed at natural grade. Diverted flows shall be returned to the stream channel immediately downstream of the work area. Immediately upon completion of in-channel work, temporary fills, diversion cofferdams, and other in-channel structures shall be removed in a manner that minimizes disturbance to downstream flows and water quality. Creek diversion shall be limited to the minimum amount of time necessary to support construction activities.</p>				
<p>General Biological Resources</p>	<p>Mitigation Measure BIO-4: Creek Bed and Bank Protection The creek bed and banks shall be protected to prevent permanent impacts from temporary construction access and project construction. Construction equipment designed to apply low ground pressure shall be used in the channel to minimize compaction of the creek bed. Native substrates removed during excavations and earthwork shall be stockpiled and returned to the creek bed and banks following project construction as part of the site restoration effort.</p>	<p>Construction contractor; Resident Engineer</p>	<p>Throughout demolition and construction activities.</p>	<p>DPW</p>	<p>Date: _____ Initials: _____</p>
<p>General Biological Resources</p>	<p>Mitigation Measure BIO-5: Fish and Wildlife Refugia Protection</p>	<p>Construction contractor;</p>	<p>Throughout demolition and</p>	<p>DPW</p>	<p>Date: _____</p>

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	Downed trees, stumps, boulders, and other basking sites and refuges within aquatic habitat shall remain undisturbed to the extent possible.	Resident Engineer	construction activities.		Initials: _____
General Biological Resources	Mitigation Measure BIO-6: Debris Containment Debris containment shall be provided to keep bridge debris from falling into San Geronimo Creek during demolition and construction activities.	Construction contractor; Resident Engineer	Throughout demolition and construction activities.	DPW	Date: _____ Initials: _____
General Biological Resources	Mitigation Measure BIO-7: Restoration and Revegetation Modified or disturbed portions of the stream channel, banks, and riparian areas shall be restored as nearly as possible to natural and stable contours (elevations, profile, and gradient). Native substrates removed during excavations and earthwork shall be stockpiled and returned to the creek bed and banks. An assemblage of native grass seed mix and shrubs shall be applied to areas disturbed by construction, creek access, and contouring, as well as to areas where native soils overlay the buried RSP. Riparian trees shall be planted in areas on site and in kind to those requiring removal for construction access. Riparian plants shall also be planted along the banks in the areas of bank stabilization, RSP placement, and any disturbed areas. Live willow cuttings shall be used at the appropriate lower bank elevations (just above bank toe). Invasive, exotic plants shall be controlled within the project site to the maximum extent practicable, pursuant to Executive Order 13112.	Construction contractor; Resident Engineer	After construction, prior to demobilization.	DPW	Date: _____ Initials: _____
General Biological Resources	Mitigation Measure BIO-8: Management of Japanese Knotweed Japanese knotweed is an invasive species prevalent within the region. If Japanese knotweed is identified in the BSA, excavation around the plant shall be avoided	Construction contractor; Resident Engineer	Throughout demolition and construction activities.	DPW	Date: _____ Initials: _____

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	when possible. When excavation around the plant cannot be avoided due to construction activities, the plant shall be excavated 10 feet below the surface and disposed of off-site.				
General Biological Resources	<p>Mitigation Measure BIO-9: Aquatic and Riparian Vegetation Protection</p> <p>Disturbance and removal of riparian, emergent, and aquatic vegetation shall be minimized. If riparian vegetation must be cut back, it shall be to the minimum height necessary (no lower than ground level) in order to promote rapid re-growth.</p>	Construction contractor; Resident Engineer	Throughout demolition and construction activities.	DPW	Date: _____ Initials: _____
General Biological Resources	<p>Mitigation Measure BIO-10: Prevention of Wildlife Entrapment</p> <p>To prevent inadvertent entrapment of wildlife species during construction, excavated holes or trenches more than 1 foot deep with walls steeper than 30 degrees shall be covered at the close of each working day by plywood or similar materials. Alternatively, an additional 4-foot-high vertical barrier, independent of exclusionary fences, shall be used to further prevent the inadvertent entrapment of wildlife species. If it is not feasible to cover an excavation or provide an additional 4-foot-high vertical barrier, independent of exclusionary fences, one or more escape ramps constructed of earth fill or wooden planks shall be installed. Before such holes or trenches are filled, they shall be thoroughly inspected for trapped animals. If at any time a trapped listed animal were discovered, the on-site biologist shall immediately place escape ramps or other appropriate structures to allow the animal to escape or the USFWS/CDFW shall be contacted by telephone for guidance. The USFWS/CDFW shall be notified of the incident by telephone and electronic mail within 48 hours.</p>	Construction contractor; Resident Engineer; biologist approved by DPW	Throughout demolition and construction activities.	DPW	Date: _____ Initials: _____

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General Biological Resources	Mitigation Measure BIO-11: Material Storage CRLF and other species are attracted to cavity-like structures, such as pipes, and may seek refuge under construction equipment or debris. They may become trapped or injured if such materials are moved. All construction pipes, culverts, or similar structures, construction equipment or construction debris left overnight within the work area shall be inspected by the agency-approved biological monitor prior to being moved.	Biologist approved by USFWS	During construction. Prior to moving pipes, culverts, similar structures, construction equipment, or construction debris left overnight within the work area.	DPW	Date: _____ Initials: _____
General Biological Resources	Mitigation Measure BIO-12: Nesting Bird Surveys A nesting bird survey shall be performed by an approved biologist no more than 72 hours prior to the start of construction activities occurring during the breeding season (February 15 to August 31).	Biologist approved by DPW	No more than 72 hours prior to the start of construction activities occurring during the breeding season (February 15 to August 31).	DPW	Date: _____ Initials: _____
General Biological Resources	Mitigation Measure BIO-13: Non-disturbance Buffer for Nesting Birds If work is to occur within 100 feet of active raptor nests or 50 feet of active passerine nests, a non-disturbance buffer shall be established at a distance sufficient to minimize disturbance based on the nest location, topography, cover, the species' sensitivity to disturbance, and the intensity/type of potential work activities.	Biologist approved by DPW	Prior to ground-disturbing activities within 100 feet of active raptor nests or 50 feet of active passerine nests.	DPW	Date: _____ Initials: _____
General Biological Resources	Mitigation Measure BIO-14: Work Window for Nesting Birds	Construction contractor;	During demolition and	DPW	

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	To the extent practicable, clearing and grubbing activities and any tree removal would be conducted during the non-nesting season, from September 1 to February 14.	Resident Engineer	grubbing activities.		Date: _____ Initials: _____
General Biological Resources	<p>Mitigation Measure BIO-15: Worker Environmental Awareness Training</p> <p>Prior to working on the project, all construction personnel shall attend a mandatory environmental education program delivered by an approved biologist. At a minimum, the training shall include a description of listed species, migratory birds, and their habitats. The training shall also discuss the potential occurrence of these species within the BSA; an explanation of the status of these species and their protection under the Endangered Species Act and other laws; the measures to be implemented to conserve listed species and their habitats as they relate to the work site; and, boundaries within which construction may occur. Documentation of the training, including sign-in sheets, shall be kept on file and shall be available on request.</p>	Biologist approved by DPW	Before individual workers enter the project site during construction activities.	DPW	Date: _____ Initials: _____
General Biological Resources	<p>Mitigation Measure BIO-16: Wildlife Exclusion Fencing</p> <p>High visibility wildlife exclusion fencing at least 4 feet in height shall be installed around suitable habitat for listed species within the outer footprint of the project to prevent wildlife from accessing work areas. The fencing shall be removed only when all construction equipment is removed from the site. No project activities shall occur outside the delineated project area. The wildlife exclusion fencing shall be monitored periodically and all areas shall be checked following rain events. Construction activities occurring outside of suitable habitat for special-status species shall not require wildlife exclusion fencing.</p>	Construction contractor; Resident Engineer	<p>Wildlife exclusion fencing shall be installed before ground-disturbing activities.</p> <p>Monitoring shall occur periodically throughout the</p>	DPW	Date: _____ Initials: _____

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			construction period.		
General Biological Resources	Mitigation Measure BIO-17: Listed Species On-site The Resident Engineer shall immediately contact the agency-approved project biologist(s) in the event that coho salmon, steelhead, CRLF, or other listed species are observed within a construction zone. The Resident Engineer shall suspend construction activities within a 50-foot radius of the animal until the animal leaves the site voluntarily or an agency-approved protocol for removal has been established.	Resident Engineer, biologist approved by USFWS and NMFS	During construction, if listed species are observed within the construction area.	DPW	Date: _____ Initials: _____
Impacts to Coho Salmon, Steelhead Trout, and Tomales Roach	Mitigation Measure BIO-18: Salmonid Work Period In accordance with the NMFS and CDFW work window for salmonids, work in the San Geronimo Creek channel shall be restricted to the period from June 15 to October 15, when stream flow is lowest.	Construction contractor; Resident Engineer	Prior to construction, during construction.	DPW	Date: _____ Initials: _____
Impacts to Coho Salmon, Steelhead Trout, and Tomales Roach	Mitigation Measure BIO-19: Coho Salmon and Steelhead Critical Habitat and EFH Protection Downed trees, stumps, boulders, and other refuges shall remain undisturbed as much as possible. Thermal refugia (pools) and suitable spawning sites shall remain undisturbed as much as possible. Disturbances to coho salmon and steelhead critical habitat and EFH shall be documented by the approved biologist and provided to NMFS as necessary.	Construction contractor; Resident Engineer; biologist approved by USFWS	Prior to construction, during construction.	DPW	Date: _____ Initials: _____
Impacts to Coho Salmon, Steelhead Trout, and Tomales Roach	Mitigation Measure BIO-20: Fish Handling Plan A fish handling and relocation plan shall be developed by the approved aquatic biologist in coordination with NMFS and/or CDFW. Individual organisms shall be relocated the shortest distance possible to an adjacent upstream area with sufficient aquatic habitat. Within occupied	Biologist approved by NMFS and/or CDFW	A fish handling and relocation plan shall be developed before project construction.	DPW	Date: _____ Initials: _____

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	<p>habitat, capture, handling, exclusion, and relocation activities shall be completed no earlier than 48 hours before construction begins. If electrofishing is conducted, it must be performed by an approved biologist following NMFS guidelines.</p> <p>During fish relocation, all organisms shall be kept in water to the maximum extent possible and captured coho salmon and steelhead shall be kept in cool, shaded, well-aerated water and protected from disturbance and overcrowding until they are released. To avoid predation, separate containers shall be used: one for young-of-the-year coho and steelhead, and one for second or third-year coho and steelhead. Captured fish shall be relocated to suitable upstream rearing habitat that is as close to the dewatered area as possible while meeting the survival needs (adequate water quality/quantity, cover, and forage) of both the relocated individuals and the fish already inhabiting the relocation site.</p> <p>The fish handling plan shall include methods for detecting and relocating lamprey larva (<i>ammocoetes</i>) following the recommendations in Attachment A: Electrofishing Recommendations for Sampling Larval Pacific Lampreys in Best Management Practices to Minimize Adverse Effects to Pacific Lamprey (<i>Entosphenus tridentatus</i>).</p>		<p>Capture, handling, exclusion, and relocation activities shall be completed no earlier than 48 hours before construction begins.</p>		
<p>Impacts to Coho Salmon, Steelhead Trout, and Tomales Roach</p>	<p>Mitigation Measure BIO-21: RSP Installation RSP installation shall follow fish passage guidelines consistent with the California Salmonid Stream Habitat Restoration Manual (CDFW 2010) and the NMFS Anadromous Salmonid Passage Facility Design (NMFS 2011).</p>	<p>Construction contractor; Resident Engineer</p>	<p>RSP installation guidelines shall be incorporated in the project design and verified by DPW prior to construction.</p>	<p>DPW</p>	<p>Date: _____ Initials: _____</p>

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Impacts to California Red-legged Frog	<p>Mitigation Measure BIO-22: California Red-legged Frog Preconstruction Survey.</p> <p>No more than 24 hours prior to the date of initial ground disturbance, a preconstruction survey for the CRLF shall be conducted by an agency-approved biologist at the project site. The survey shall consist of walking the project limits and within the project site to ascertain the possible presence of the species. The agency-approved biologist shall investigate all potential areas that could be used by the CRLF for feeding, breeding, sheltering, movement, and other essential behaviors. This includes an adequate examination of mammal burrows, such as California ground squirrels or gophers. If any adults, subadults, juveniles, tadpoles, or eggs are found, the agency-approved biologist shall contact USFWS to determine if moving any of the individuals is appropriate. In making this determination, USFWS shall consider if an appropriate relocation site exists. If USFWS approves moving animals, the agency-approved biologist shall move the animals from the work site before ground disturbance is initiated. Only agency-approved biologists shall capture, handle, and monitor the CRLF.</p>	Biologist approved by USFWS	<p>No more than 24 hours prior to start of ground disturbance.</p> <p>If CRLF adults, subadults, juveniles, tadpoles, or eggs are found, and USFWS approves moving animals, the biologist shall move the animals from the work site before ground disturbance activities.</p>	DPW	Date: _____ Initials: _____
Impacts to Northern Spotted Owl	<p>Mitigation Measure BIO-23: Work Window for Northern Spotted Owl</p> <p>The County shall commission two surveys for nesting northern spotted owls during the months of April and May preceding the commencement of construction. At a minimum, the survey area shall include all suitable nesting habitats within 0.25 mile of the project site. If, following the first or second survey, it can be conclusively determined that there are nesting northern spotted owls, construction activities that are within 0.25 mile of an identified active nest shall not begin prior to August 1 unless the young have fledged, at which time</p>	Biologist approved by DPW	During the months of April and May preceding the commencement of construction.	DPW	Date: _____ Initials: _____

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	construction or staging may begin no earlier than July 10. Regardless of nesting locations, construction shall conclude no later than January 31 (prior to the beginning of the mating and nesting season).				
Impacts to San Francisco Dusky-footed Woodrat	Mitigation Measure BIO-24: San Francisco Dusky-footed Woodrat Avoidance If an individual San Francisco dusky-footed woodrat is found during preconstruction surveys, work will not commence until the individual leaves the work area of its own volition.	Biologist approved by DPW	Before ground-disturbing activities.	DPW	Date: _____ Initials: _____
Impacts to San Francisco Dusky-footed Woodrat	Mitigation Measure BIO-25: San Francisco Dusky-footed Woodrat Midden Removal The County shall request a Memorandum of Understanding with CDFW to develop and implement a relocation plan for San Francisco dusky-footed woodrat nests affected by the project.	DFW	The Memorandum of Understanding shall be developed before ground-disturbing activities.	DPW	Date: _____ Initials: _____
Impacts to Pallid Bat, Townsend's Big-eared Bat, and Yuma Myotis	Mitigation Measure BIO-26: Roosting Bat Surveys No more than two weeks prior to tree removal, a qualified biologist shall conduct a pre-construction survey for crevice and cavity roosting habitat within the bridge and in trees within the BSA that are 12 inches or greater in diameter at breast height. Surveys for maternity colonies should be conducted during the summer of the year before the project is scheduled so that any such roosts can be removed/replaced or exclusionary measures can be put in place prior to the onset of the non-volant period.	Biologist approved by DPW	During the summer of the year before the project is scheduled. No more than two weeks prior to tree removal.	DPW	Date: _____ Initials: _____

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Impacts to Pallid Bat, Townsend's Big-eared Bat, and Yuma Myotis	Mitigation Measure BIO-27: Construction Activities around Bat Roosts Any area under a confirmed day or night bat roost that is within visual sight of bats shall be designated as an environmentally sensitive area. To minimize impacts to day roosts during the non-volant period when young are present but cannot fly (May 1 to July 31), work shall not occur directly under or adjacent to the roost. To minimize impacts to night roosts, construction activities shall not occur immediately around a roost site between 10:00 PM and sunrise, especially during the period of highest night-roost use from spring to fall. Clearing of vegetation and grubbing around roosts shall be minimized wherever possible. Combustion equipment (e.g., pumps, generators, vehicles) shall not be used immediately under the roost. The presence of personnel under roost sites shall be minimized, particularly during the evening exodus. Lights shall not be placed in a location where a roost site would be illuminated.	Biologist approved by DPW	During construction.	DPW	Date: _____ Initials: _____
Impacts to Trees	Mitigation Measure BIO-28: Tree Surveys In accordance with project permitting, trees within the project area shall be surveyed to account for construction impacts and appropriate mitigation. DPW shall provide tree replacement on-site to the maximum extent possible and an off-site planting strategy shall be developed in coordination with CDFW and RWQCB during the permitting process to address the balance of tree mitigation needs. All riparian trees shall be mitigated at a 3:1 ratio, and all upland trees at a 1:1 ratio.	Construction contractor; licensed arborist; DPW	Trees shall be surveyed before ground disturbing activities. If needed, DPW shall develop the off-site planting strategy prior to project construction.	DPW	Date: _____ Initials: _____
Impacts to Trees	Mitigation Measure BIO-29: Tree Protection	Construction contractor;	Tree preservation	DPW	Date: _____

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	Tree preservation measures including root pruning, cabling, trunk armoring, and monitoring by a licensed arborist would be incorporated into the project design and implemented during project planning and construction to minimize tree removal and loss in the project area.	licensed arborist	measures shall be incorporated in the project design and verified by DPW prior to construction.		Initials: _____
Environmental Checklist Section 7. Geology, Soils, and Seismicity					
Strong Seismic Ground Shaking Impacts	<p>Mitigation Measure GEO-1: Site-Specific Construction Methods and Recommendations</p> <p>Prior to approval for demolition, a licensed geotechnical engineer shall prepare a design-level geotechnical report outlining site-specific construction methods and recommendations regarding grading activities, fill placement, soil corrosivity/expansion/erosion potential, compaction, foundation construction, drainage control (both surface and subsurface), and avoidance of settlement, liquefaction, differential settlement, and seismic hazards in accordance with current California Building Code requirements including Chapter 16, Section 1613. The report shall require that all subsurface improvements that include any materials susceptible to corrosive effects shall be engineered in conformance with the most recently adopted California Building Code requirements including the use of engineered backfill. The report shall also include stability analyses of final design cut and fill slopes, including recommendations for avoidance of slope failure. The final grading plan shall be designed and constructed in accordance with requirements of the final design-level geotechnical investigation prior to building.</p>	Licensed geotechnical engineer	During preparation of the final grading plan; prior to approval for demolition.	DPW	Date: _____ Initials: _____