

# **Guideline on Permit Period Assessment for Utility Trench Works**

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**Version 1.0**

## **1.0 Introduction**

- 1.1 Under Land (Miscellaneous Provisions) Ordinance (LMPO), a street excavation promoter shall apply for an excavation permit (XP) from Highways Department (HyD) before making and maintaining an excavation in unleased Government land which is a street. The XP is only valid for the period specified therein with a view to control the time of excavation and minimize disturbance to traffic network and road users.
- 1.2 To cater for delay of excavation due to unexpected issues, an XP extension mechanism is established under the LMPO. HyD may on payment of the appropriate prescribed fee, including economic cost if carriageway is affected, extend the permit period. The permittee can apply for extension without charge if he is unable to have access to a substantial portion of the street before the commencement of the excavation, or can apply for refund of economic cost if the extension is caused by reasons other than the fault of the permittee or his contractor.
- 1.3 In order to determine a reasonable permit period, a period permit assessment (PPA) shall be carried out during the permit application. Under the PPA, an XP applicant is required to propose a permit period of his excavation works to HyD for approval.
- 1.4 This guideline aims to set out the principles and criteria of HyD to approve the permit period as well as the procedures to be followed by XP applicants to perform PPA. For step-by-step PPA process in Excavation Permit Management System (XPMS), please refer to XPMS Training Notes B5. For details of other process in XP application and administration, please refer to the XP Processing Manual.

## 2.0 Types of Excavation Permit

2.1 Under the current XP system, there are several types of XP to cater for different nature and scale of road excavation works. The common types of XP include Normal Excavation Permit (NXP), Urgent Excavation Permit (UXP), Emergency Excavation Permit (EXP), Small Scale Works Excavation Permit (SSWXP), and Capital Works Excavation Permit (CWXP). The permit duration of some of these permit types are to be determined under PPA, whereas some are dictated under LMPO or XP Processing Manual.

2.2 For EXP and SSWXP, PPA is not required and the permit duration is set as follows: -

Type of XP	Duration of Block Permit	Duration of Permit Section
EXP	6 months	7 days for each emergency incident*
SSWXP	184 days	24 hours for each SSW job affecting carriageway 48 hours for each SSW job not affecting carriageway

\* Remarks: If the emergency excavation cannot be completed within 7 days, the EXP permittee shall apply a continuing emergency XP of which the PPA method is same as UXP.

2.3 For NXP and UXP, the method of PPA depends on the type of works involved. Permit duration shall be assessed using the PPA method for short duration works, standard works or non-standard works as appropriate.

2.4 For CWXP, the permit duration shall be assessed using the PPA method of non-standard works.

### 3.0 Types of Works

3.1 Road excavation works can be categorized into 3 work types, namely short duration works, standard works, and non-standard works. The definition and requirements of PPA submission for individual work type are described as follows:-

#### 3.2 Short Duration Works

Short duration works refer to specified minor road excavation works of which the duration is limited to maximum 14 working days. The list of short duration under each trade is at **Appendix A** for reference.

In the PPA process, the applicant shall indicate the short duration works involved and propose a period duration to HyD for vetting. No detailed works programme is required.

#### 3.3 Standard Works

The standard works refer to the regular and common road excavation works. A set of standard templates are available for determination of a reasonable permit period for this works type. The list of standard templates under each trade is at **Appendix B** for reference.

In the PPA process, the applicant shall propose to HyD a permit period supported with a works programme in which the duration of each excavation item is determined using the appropriate standard PPA template.

### 3.4 Non-standard Works

The non-standard works refer to excavation works other than the short duration works and standard works stated in above.

In the PPA process, the applicant shall explain clearly the reason the excavation works have to be categorized as non-standard works instead of standard works. The applicant shall propose to HyD a permit period supported with a works programme. The works programme shall be in form of a simple Gantt chart which can be created in XPMS by either completing the blank templates or modifying suitable fields of standard works templates. HyD may require the applicant to provide further substantiation, such as master programme of the construction contract, breakdown of works activities, etc. to justify the proposed permit period.

#### **4.0 Structure of PPA Templates for Utility Trench Works**

- 4.1 In XPMS, there is a set of standard templates for assessing the permit period of excavation for various utility trades including drainage services (DSD), electricity supplies (ELE), fixed telecommunication network services (FTN), gas supplies (GAS) and water supplies (WSD). The applicant is only allowed to use the standard templates of his own trade to perform standard PPA.
- 4.2 Under each utility trade, there are 3 standard PPA templates to cater for 3 different road types, namely flexible carriageway, rigid carriageway and footway. The applicant shall use the PPA template according to the road type of which the excavation trench is located. The extent of each excavation trench shall be confined to the area permitted to be fenced off at one time. If the excavation trench has to cross both carriageway and footway, the applicant may use the PPA templates for carriageway.
- 4.3 Under each PPA template, the standard works are further broken down into a series of standard works activities. These works activities cover both site works and administrative works that are usually carried out during the excavation for utility trench. Some of these activities are common activities across all templates, whereas some are special works activities which are only available for templates in specific trades. The list of these activities under each trade is at **Appendix C** for reference.
- 4.4 For individual trade, not all activities are applicable to the templates of all road type. For example, construction of telephone kiosk is not applicable to templates for carriageways and concrete curing is not applicable to template for flexible carriageway.

- 4.5 The logical relationship among works activities is defined by the default setting of predecessor and overlap. The predecessor of a works activity indicates the sequence of works. The predecessor activity must be finished before the current activity can be carried out. The overlap of a works activity indicates how long the current activity will be overlapped with its predecessor.
- 4.6 The duration of each works activity is defined by the formula in the PPA templates. Different sets of formula are available for various combinations of trench width and trench depth. In addition, the work activities are divided into fixed duration activities and length dependent activities.
- 4.7 The fixed duration activities are the activities not much dependent on the length of trench, such as taking over site and construction of manhole. Fixed values are assigned for these activities in the PPA templates.
- 4.8 The length dependent activities are the activities heavily dependent on the length of trench, such as breaking up road surface and excavation of trench. The duration of the length dependent activities comprise of a nominal part and a variation part. The variation part increases with the length of trench in direct proportion.
- 4.9 For excavation of trench length which is between 10m and 50m, the trench length rounded up to the nearest 10m with corresponding width and depth.

4.10 The duration of works activities can be influenced by the site condition, such as time constraint, climatic conditions, hard rock condition and other physical site constraints. In the PPA templates, the effect of site condition on the duration of a work activity is represented by a multiplication factor. The duration of affected work activities can be prolonged by multiplying the corresponding multiplication factors. The list of these activities under each trade is at **Appendix D** for reference.

4.11 The applicant shall justify the use of multiplication factors. HyD may require the applicant to provide substantiation, such as previous site photos, TTA plans and/or ground investigation results if necessary.

## **5.0 Procedures for PPA**

- 5.1 The first step is digitization of excavation alignments. Each XP is allowed to have more than one excavation item. The applicant shall indicate the locations and dimensions of all excavation items in this process. The length of each excavation item shall represent the length of workfront to be fenced off at each TTA phasing. In practice, a length limit on road opening of 20m to 30m is usually imposed by HKPF / TD. To avoid unreasonable long excavation trench, a maximum length limit of 50m is set in XPMS. For step-by-step process of alignment digitization in XPMS, please refer to XPMS Training Notes B2.
- 5.2 The next step is selection of appropriate excavation works types. The applicant shall indicate that the trench works are short duration works, standard works or non-standard works. For short duration works, the applicant shall propose to HyD the permit duration of less than 14 days for vetting. No detailed works programme is required. For works other than short duration works, the applicant shall determine the duration of individual excavation items by PPA templates. For step-by-step process of use of PPA templates in XPMS, please refer to XPMS Training Notes B5.
- 5.3 After obtaining the duration of all excavation items, the applicant shall schedule the excavation items in accordance with the planned works sequence by adjusting the start date of individual excavation items. The whole permit commences from the start date of the first excavation item and finishes at the end date of the last excavation item.

5.4 For excavations affect carriageways, administrative time gaps of not more than 14 days can be introduced between excavation items to cater for necessary administrative preparation works. Typical administrative preparation works include application for road work advice, parking meter suspension and gazette for road closure, etc. The applicant shall state clearly the reasons of introducing the time gaps. HyD may require the applicant to provide substantiation to justify the duration of time gap introduced. During the excavation stage, the applicant shall start the administrative preparation works before the completion of the preceding excavation item as early as practical to avoid unnecessary delay.

**List of Short Duration Works**

Trade	Short Duration Works
DSD	(1) Breaking up manhole shafts for lining works
	(2) Continuation of emergency work carried out under Emergency Excavation Permit
	(3) Filling and sealing the disused pipes and manholes
	(4) Make good / repair manholes
	(5) Minor diversion in conjunction with the work of other utilities
	(6) Minor service / reinforcement/repair work of drainage / sewerage system
	(7) Rectification of reinstatement defects
	(8) Removal / installation of traffic signs, railings, crash gate, lamp post, fire hydrants, post box, etc. for Temporary Traffic Measures or rectification of defects
	(9) Temporary carriageway/footway widening for TTA
	(10) Trial pit excavation.
ELE	(1) Continuation of emergency work carried out under Emergency Excavation Permit
	(2) Minor diversion in conjunction with the work of other utilities
	(3) Minor service / reinforcement/repair work of power supply system
	(4) Rectification of reinstatement defects.
	(5) Removal of low voltage service cables not requiring shutdown of supply to other customers
	(6) Removing / Installing traffic signs for Temporary Traffic Measures or carrying out rectification of defects
	(7) Replacement of underground pit cover/rectification of pit cover defect
	(8) Trial pit excavation
FTN	(1) Adjusting / Raising / Replacing jointing chamber frames and covers
	(2) Carrying out minor underground duct repair
	(3) Carrying out rectification work to minor reinstatement defects
	(4) Erecting/Recovering telephone poles
	(5) Excavating one to three trial holes (up to 1m length x 1m breadth x 1m depth each) at adjacent locations
	(6) Laying lead-in ducts to buildings (up to 5 metres trench length)
	(7) Removing/Installing traffic signs for Temporary Traffic Measures or carrying out rectification of defects

Trade	Short Duration Works
GAS	(1) Capping-off of underground main / service
	(2) Inspection of underground pipes
	(3) Installation / Repair / Replacement of valve
	(4) Installation of recessed type cover
	(5) Locate lost pit cover
	(6) Rectify unsatisfactory reinstatement work
	(7) Repair / Replacement of subsided or damaged pit cover
	(8) Repair / replacement of syphon standpipe, corroded service pipe and risers
	(9) Repair governor impulse line / vent stack
	(10) Small pipe laying / connection work
	(11) Trial pit excavation
WSD	(1) Adjust / Raise / Replace manhole / pit cover, frame
	(2) Connection to consumer supplies
	(3) Connection to fire hydrant for temporary supply
	(4) Continuation of emergency work carried out under Emergency Excavation Permit
	(5) Ground Investigation (such as trial pit excavation, borehole, piezometer installation etc.)
	(6) Installation of pedestal fire hydrant
	(7) Installation of small size valves (150mm and below)
	(8) Minor diversion in conjunction with the work of other utilities
	(9) Minor diversion works in conjunction with the works of other utility undertaking
	(10) Rectification of minor reinstatement defects e.g. missing road markings
	(11) Removal / installation of traffic signs
	(12) Repair of damaged fire hydrants
	(13) Repair of valves/mains with minor leakage

**List of Standard Works Templates**

<b>Trade</b>	<b>Standard Works Template</b>
DSD	(1) Typical Works Programme for Flexible Carriageway - Drainage Pipe Laying Work
	(2) Typical Works Programme for Rigid Carriageway - Drainage Pipe Laying Work
	(3) Typical Works Programme for Footway - Drainage Pipe Laying Work
ELE	(1) Typical Works Programme for Flexible Carriageway - Distribution Work
	(2) Typical Works Programme for Rigid Carriageway - Distribution Work
	(3) Typical Works Programme for Footway - Distribution Work
FTN	(1) Typical Works Programme for Flexible Carriageway - Ducts/Cables Laying Works
	(2) Typical Works Programme for Rigid Carriageway - Ducts/Cables Laying Works
	(3) Typical Works Programme for Footway - Ducts/Cables Laying Works
GAS	(1) Typical Works Programme for Flexible Carriageway - Gas Pipe Laying Work
	(2) Typical Works Programme for Rigid Carriageway - Gas Pipe Laying Work
	(3) Typical Works Programme for Footway - Gas Pipe Laying Work
WSD	(1) Typical Works Programme for Flexible Carriageway - Pipe Laying Work
	(2) Typical Works Programme for Rigid Carriageway - Pipe Laying Work
	(3) Typical Works Programme for Footway - Pipe Laying Work

### List of Works Activities

Work Activity Code	DSD	ELE	FTN	GAS	WSD
011	Take over site				
021	Fence off site with necessary temporary traffic arrangement (follow the approved TTM; demarcation of site by the appropriate signs and guarding, relocation of road signs, etc)				
022	Major traffic arrangement (e.g. trial run as requested by the Police, temporary rerouting of carriageway)				
031	Locate utilities (e.g., cable / gas pipe location)				
041	Break up road surface and remove spoil				
051	Excavate trench in soft material, install shoring and remove spoil				
052	Support and protect utilities				
053	Demolish existing manholes	Telephone pit/pipe removal and reconstruction (by power company)	Demolish existing jointing chamber (Joint Box)		
054		Telephone pit/pipe removal and reconstruction (by other UUs)	Demolish existing jointing chamber (Manhole)		
055	Temporary decking / undecking (per linear 10m)				
055A	Lay Flush with Road Surface				
056	Tunneling (e.g. under tram track per carriageway lane)				
057		Construct duct bank			
061	Lay bedding and pipes	Lay pipes/cables	Lay ducts/cables	Laying and jointing of pipes	Laying and jointing of pipes
062	Water/air testing	Erect platform for cable laying	Construct jointing chamber (Joint Box)	Construct Manhole/Pit/Valve Chamber	Connect new main to live main

Work Activity Code	DSD	ELE	FTN	GAS	WSD
063	Construct manholes	Locate cable/jointing position, arrange shutdown/outage, cable jointing and accessories installation.	Construct jointing chamber (Manhole)	Construct/Modify Above Ground Service Governor	Teeing off from new main
064			Modify jointing chamber frame and covers	Construct/Modify Above Ground District Governor	Construct thrust block
065			Construct/Demolish kiosk/cabinet foundation	Construct/Modify Underground Governor (Single Stream)	Install and construct valve chamber
066			Erect telephone pole	Construct/Modify Underground Governor (Twin Stream)	Construct DN600 Inspection Tee Chamber
067			Repair ducts/cables (per 10m linear duct length)	Soundness test (air / hydraulic)	Construct Washout Pump pit
068				Arrange for temp. suspension of gas supply with customer	Install & construct Waste Detection Meter Chamber
069				Connect new main/service to live main/service	Install & construct Single/ Double Air Valve Chamber
0610					Pressure testing
0611					Cleaning and Sterilization
0612					Water sampling

Work Activity Code	DSD	ELE	FTN	GAS	WSD
0613					Arrange newspaper/radio announcement on supply interruption for final connection
0614					Final connection & resumption of water supply
071	Backfill trench and soil test				
072	Reinstatement				
073	Concrete curing				
074	Road marking and furniture				
075	Demobilization (site clearance)				
081	Check reinstatement quality and report completion of road opening works				

### **Multiplication Factors for PPA Templates**

<b>Site Condition</b>	<b>Division</b>	<b>Description</b>	<b>Multiplication Factor</b>
A - Time constraint	A1	10:00-16:00 only (Police / customer restriction)	2
	A2	2.5 hours × 2 per day (e.g. 09:00 - 11:30 and 14:30 - 17:00 for restaurants, schools or busy shopping areas)	2.4
	A3	3 working hours per day (e.g. 13-16 at Kam Wah St. market)	4
	A4	CNP - 19:00 to 23:00 only	3
	A5	CNP - 21:00 to 23:00 only	6
	A6	CNP - Night (19 to 23) and Sunday/holidays (10 to 17)	2.3
	A7	Others	
B - Climatic condition	B1	Rainy season (April to September with % days lost > 10%) - necessity for additional preventive measures such as water pumping, erection of bund walls etc.	1.1
C - Hard rock	C1	Hard rock > 80%	6.5
	C2	Hard rock > 50% & ≤ 80%	5.2
	C3	Hard rock > 30% & ≤ 50%	3.2
	C4	Hard rock > 10% & ≤ 30%	1.9
D - Site constraint (physical)	D1	Congested underground installations (e.g. footpath of urban area or footpath of <3.5m width in rural area)	1.5
	D2	Steep road (> 1 : 10) / staircase	1.8